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Making the Poor Count Takes More than Counting the Poor

A Quick Poverty Assessment of the State of Bahia, Brazil

By

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MAP OF THE STATE OF BAHIA

1. Introduction

Bahia has transformed itself from a dozy rural economy to the leading manufacturing state of the Northeast during the last three decades. In the process, the state government has developed a reputation as a modernizing, fiscally responsible administration. However, problems remain. Growth is lacking and poverty remains widespread (World Bank 2001b).

Progress in reducing poverty and improving social indicators has taken place in the last decade in Bahia. Despite this progress, poverty is among the highest, and social indicators are among the lowest, in Brazil. The prospects for Bahia's poor are improving, but more needs to be done to ensure a better life for those who are vulnerable. With decisive action, Bahia could continue to build upon its recent achievements.

The recent growth of the economy, demographic changes, and macroeconomic stabilization have reduced poverty in Bahia. Comparing household survey data from 1993 with the recent available data (2001) shows that the number of people living in poverty has declined. More than half of Bahia's population lived in households below the poverty line in 1993; this proportion fell to 41 percent in 2001, a drop in absolute terms of 14 percentage points over the eight-year period. Nevertheless, as of 2001[2], Bahia was one of the poorest states in Brazil. In 2001, median per-capita income in Bahia was only R$100, 55 percent of the national average. The fall in Bahia's social indicators, such as infant mortality and adult illiteracy, corroborates the improvement in measured income poverty.

Reducing poverty is one of the central challenges in Bahia. This poverty assessment attempts to answer several basic questions about poverty in Bahia. It is a quick assessment and is therefore not able to focus on all areas of poverty. The paper addresses poverty in broad sense, that is, both monetary and non-monetary poverty. A broad view of poverty was wished for when producing the paper, defining poverty as unacceptable deprivation in human well being, including not only insufficient income and consumption, but also voicelessness, powerlessness, and the lack of basic needs such as education, health, nutrition, and security. However, data are not available for all these measures of poverty in Bahia, so for quantitative analysis this paper accepts a much narrower definition of poverty as insufficient income, education, employment, access to public services, social assistance, and poor health.

Given the heterogeneity of the poor in terms of income sources, human resources, and physical endowments, there is no single or simple solution. The paper concludes that a poverty reduction strategy must include different exit paths for different households, via a set of integrated policies tailored to capitalize on

[2] 2001 is the most recent year for which data from the national household survey are available.

heterogeneous living conditions. Policy reforms need to be carried out simultaneously in different areas. The policies must be aimed at enhancing economic growth and employment, which are key to sustainable poverty reduction, as well as targeted poverty alleviation programs aimed at more directly assisting the poor. There is also merit to analytical work that serves as an important instrument to improve the quality of public policy making and monitoring and evaluating public programs and policies to see the extent to which they are meeting their objectives and whether their design needs to be changed.

The paper is organized in 8 sections. Section 2 outlines Bahia's economic and demographic development. Section 3 outlines the data and methodology applied in the paper. Section 4 addresses poverty, income inequality, and quality of life and Section 5 constructs a poverty profile of Bahia. Section 6 addresses the question of access to services and assets applying among other types of analyses, incident analysis. Section 7 analyzes poverty correlates in Bahia as well as in Brazil as a whole. Finally, Section 8 proposes a six-pronged poverty-reduction strategy for Bahia.

2. Growth and Demographic Trends

This section outlines what can serve as a base for a poverty reduction strategy in Bahia, namely macroeconomic stability, economic growth, and demographics. Individual and household assets, in particular human capital and labor market association, are other important poverty reducing factors (see Sections 5, 6, and 7).

DEMOGRAPHICS

The degree of poverty a society might experience depends on the volume and distribution of resources and on the size and distribution of the population among households. These two basic determinants of poverty, however, are not independently determined. On one hand, the size and age structure of a population are consequences of fertility decisions taken over past decades that were influenced by economic conditions. On the other hand, the volume of resources available today is influenced by the size and age composition of the labor force. This section analyzes changes in macroeconomic stability, demography and employment in Bahia in recent decades. The salient points are that macroeconomic stabilization has contributed to poverty reduction and demographic trends have been poverty reducing because they have lowered the dependency ratio, and this is likely to deepen further in the future.

Demographic trends, which have lowered the dependency ratio, help explain the reduction in headcount poverty (see Section 4).[3] This trend is likely to deepen further in the future as Brazil's richer regions, such as the Southeast, experience far lower fertility rates by age group than the Northeast.

In Bahia, the fall in the dependency ratio contributed to poverty reduction. Bahia is in the middle of a baby bust. After expanding at 2.1 percent per year between 1980 and 1990, Bahia's population increased by only 1.1 percent per year during 1991-2000 and reached 13.1 million in 2000.[4] The main explanation is the sharp drop in the birth rate and some out-migration. The typical poor person lives in a larger household with more children than the non-poor. In Bahia, poor households contain on average 4.2 individuals in 2001, down 0.4 individuals since 1993 (Table 2.1). Poor households have 1.2 individuals more than non-poor households. The average number of household members below age 15 is much higher in poor households than in non-poor. Poor households have on average 1.8 children below age 15, triple those of the non-poor. Each worker in a poor household supports four family members. For the non-poor the number falls to three.

Table 2.1: Average Household Size, 1993-2001

	Avg. Household Size			**Avg. # of Household Members < 15 years old**		
Poor						
	Bahia	NE	Brazil	Bahia	NE	Brazil
1993	4.6	4.5	4.4	2.1	2.0	2.1
2001	4.2	4.2	4.1	1.8	1.8	1.9
Non-Poor						
1993	3.3	3.3	3.3	0.9	0.8	0.9
2001	3.0	3.1	3.1	0.6	0.6	0.7

Source: Author's calculation based on PNAD 1993- 2001.

[3] Demographic factors have direct and indirect impacts on prices and poverty. As the size and age composition of the population changes, the relative size of the labor force and the number of dependents also change, modifying the dependency ratio of families, and therefore their level of poverty. This is the direct effect of demographic changes. It captures the effect that demographic changes have on quantities: number of children, size of the labor force, and the number of elderly people. These changes in quantities, however, will, in general, influence prices in the economy. In particular, changes in the rate of growth of the population and in the age structure may have important impacts on both labor supplies and savings. As a consequence, demographic changes may have considerable impact on the level of wages and on interest rates. Since these prices are important determinants of family income, they are bound to have a profound influence on the level of poverty. These are the indirect impacts of demographic changes on poverty, which occur through the effects of demographic changes on savings, wages, and interest rates.

[4] Data source: Demographic census from 1991 and 2000.

Fecundity—the number of children per mother--dropped from 6.2 in 1980 to 2.4 in 1999. Women's increased participation in the labor market is an important factor contributing to the reduction in the fertility rate, which also produced a sharp drop in the dependency rate. However, fecundity did not fall for all age groups and fertility rates are much higher for the 15 to 19 and 20 to 24 age groups in the Northeast (0.10 and 0.15, respectively) than in the Southeast (0.07 and 0.12, respectively) according to the 2000 Census. Furthermore, the large reductions in fertility rates since 1980 were lower in the Northeast for each age group than in the Southeast, except for the 15-to-19-year-olds, whose fertility increased, and by far more in the Northeast than in the Southeast.

Total desired fertility rate in the state is reported to be 1.9, close to that of 1.8 for Brazil as a whole. This would indicate that there is still a substantial unmet demand for high quality and reliable family planning services, information, and resources (BEMFAM 1998a). Another important development is the decline in the fertility differential between more-educated (eight years or more of education) and less-educated (less than four years) mothers, from around 4 children in the Northeast in 1980 to 1.9 children in 1998. This differential declined to 1.3 children in Brazil's richer southern states. Hence, again education plays a key role both directly (see Sections 5 and 6) and indirectly via the reduced fertility rate in poverty reduction.

In 1970, the number of children under 10 was 45 percent of the population. In 1991, it was down to 40 percent and in 2000, 32 percent. At the same time, the number of elderly dependents has not caught up. In 2000, only 5.7 percent of the population was 65 or older (Table 2.2). According to Rebeiro (2001), these trends are likely to continue. This will have a significant effect on the state's efforts to reduce poverty. For the next few decades, the ratio of children to working age population will decline, while the number of retirees will remain small. As a result, not only will dependency ratios fall, but also the amount the state must spend on expanding the quantity of social services will decline. This will free up resources to spend on improving quality and other poverty reduction efforts.

Table 2.2: Age Groups as Percentage of Bahia's Total Population, 1970-2000

	1970	**1980**	**1991**	**1996**	**2000**
0–14	45.4	43.9	39.7	35.0	32.0
15–64	51.5	51.9	55.5	59.7	62.3
65 +	3.1	4.2	4.8	5.3	5.7
TOTAL	**100**	**100**	**100**	**100**	**100**

Source: SEI.

ECONOMIC GROWTH

Bahia was the preeminent region of Brazil in the 17th and early 18th centuries and until 1763, Salvador was the capital of Brazil. Sugar cane exports were the driving force in the economy. The mining boom and coffee boom in the Southeast in the 18th and 19th centuries moved the focus of Brazil's economy southward. Bahia's economic revival did not really occur until the advent of the so-called Brazilian miracle of 1967-73, when the military regime implemented reforms aimed at encouraging investment, reducing inflation, and restraining wage demands. Despite being a highly protected economy Brazil's and Bahia's GDP grew at an average annual rate of 8.5 percent and 10.5 percent respectively during 1965-80. In Bahia, the key source of growth was heavy manufacturing. The oil crisis of 1979 followed by the debt crises caused a downturn in Brazil's growth and investment. Bahia's economy was hard hit during 1986-92 as revealed by the low average annual GDP growth rate of 0.3 percent, slightly above half of the national rate (0.5 percent).

The Brazilian reform period set in the beginning of the 1990s and revived economic growth mainly due to the liberalization of the economy and a successful stabilization. Additionally, the federal government has maintained a tight monetary policy. Between 1992 and 2000, the Brazilian and *Bahiana* economies grew at an average annual rate of around 3.1 percent. In 2001, GDP of Bahia accounted for 4.5 percent of the Brazilian GDP equivalent to R$48.9 billion.

Bahia's agriculture, services, and manufacturing sectors grew at an average annual rate of 3.0 percent 1992-2000 (Table 2.3).[5] Bahia remains very much a dual economy where, on the one hand, agriculture contributes only 11 percent of GDP, accounting for 42 percent of employment, and manufacturing, and on the other hand, contributes 26 percent of GDP, but only 6 percent of jobs (World Bank 2001b).

[5] Communications grew rapidly at an annual rate of 15 percent and transport, construction, and tourism expanded by around five percent per year. In agriculture the traditional crops (mainly cacao) experienced a decline, while new ones (soy, grain, tropical fruits, and cellulose) emerged, along with expanded cattle ranching in South Bahia..

Table 2.3: Sectoral Trends in Bahia's Economy, 1992-2000		
	Percentage of total, 2000	**Change 1992-2000 (avg. annual percent)**
Agriculture	11	3
Mining	1	-3
Manufacturing	26	3
Public utilities	4	1
Construction	10	4
Tourism	2	5
Commerce	8	3
Transport	2	6
Communication	2	15
Finance	3	3
Rent	11	3
Public administration	14	1
Other services	6	2
Total	**100**	**3**
Source: SEI (www.sei.ba.gov.br/PIB/pib.asp)		

LOCATION STRUCTURE OF ECONOMIC AND POPULATION GROWTH

Economic growth experienced in the last decades in Bahia is far from homogeneous throughout the state. The large regional differences within the state are associated with the expansion of economic activities in a few of the areas away from the Sertão. Of the 15 zones in Bahia, only four, the East, the Extreme South, Salvador, and San Francisco, experienced an above-average expansion of output during 1980–2000 (see map above). In the past two decades, these four fast-growing zones also experienced the largest population inflow of the 15 zones (Table 2.4). The largest real GDP growth, above 2.7 percent annually during 1980–2000, took place in the capital region (Metropolitan Salvador) where the industry and service sectors are particularly strong. The other three regions, the East, the Extreme South, and San Francisco, experienced around 1.9 percent annual GDP growth. In these three areas, agricultural related crops have expanded rapidly in some municipalities and created opportunities for the population, in particular, soy in the East, cellulose in the South, and irrigated tropical agriculture around Rio San Francisco.

Table 2.4: Real GDP, Population, and Poverty in Bahia's 15 Regions, 1980–2000

	Population			*Poverty*		*Real GDP Growth*
Region/Zone	**1980**	**2000**	**Annual Growth 1980 - 2000 (Percent)**	***Per Capita GDP 2000 (R$)**	**Household heads Earning <1/2 minimum salary 2001**	**1998–2000 (percent)**
Metropolitana de Salvador	1,766,724	3,021,572	2.72	7,036	14.7	18.1
Litoral Norte	393,616	530,898	1.51	4,389	16.9	20.5
Recôncavo Sul	588,527	684,550	0.76	1,890	13.2	24.6
Litoral Sul	1,122,232	1,360,539	0.97	1,671	14.0	-3.1
Extremo Sul	456,456	664,850	1.90	4,050	14.4	29.6
Nordeste	880,296	1,176,201	1.46	2,465	15.2	65.8
Paraguaçu	963,565	1,250,163	1.31	1,949	13.6	19.7
Sudoeste	863,207	1,135,362	1.38	1,708	13.0	2.4
Baixo Médio São Francisco	288,228	407,501	1.75	3,318	18.6	88.7
Piemonte da Diamantina	450,778	568,708	1.17	1,922	18.1	7.1
Irecê	274,750	372,994	1.54	1,568	19.1	14.9
Chapada Diamantina	381,725	507,414	1.43	1,483	20.6	19.8
Serra Geral	438,544	565,037	1.28	1,884	18.1	20.0
Médio São Francisco	249,890	337,507	1.51	1,508	26.2	29.6
Oeste	336,854	486,954	1.86	3,392	19.5	36.7
Total	**9,455,392**	**13,070,250**	**1.63**	**3,376**	**15.6**	**21.1**

Source: Statistical Yearbook Bahia 2001- SEI and Census 1980 and 2000.
IBGE, Census 2000, available from http://www.assistenciasocial.gov.br/censo2000/
**Per Capita GDP is calculated using preliminary data from SEI.*

The large economic and population growth in the capital zone contrasts sharply with the developments in the zones that are mainly in the Sertão and where income opportunities are limited, droughts are frequent, and social protection programs are few. A large share of the population in the zones that are almost completely in the Sertão migrated to the metropolitan area.

Despite the welcome migration from the poorer interior zones, poverty remained rampant among families left in these zones. More than 60 percent of the household heads had incomes of less than one minimum salary in the poor regions, compared to the regional average of 55 percent, or the capital zone's 34 percent. The share of household heads earning less than half a minimum salary also varies across regions (Table 2.4). The Southwest region is among the poorest in terms of per-capita GDP. However, the headcount poverty is the lowest; only 13 percent earning less than half a minimum wage in 2000.

This clearly shows that regional disparities in Brazil extend beyond the differences between the Northeast and Southeast. There are sharp differences between the fast- and slow-growing regions within Bahia. This is very clear also from income per capita, which in the poor zones is only around a quarter of that in the capital region. However, poverty is not only a rural phenomenon—35.7 percent of heads of households in urban areas earn less than what is needed to lift the household above the poverty line (see Table 5.1)

MACROECONOMIC STABILIZATION

Most of the reduction in poverty in Brazil and its states in the last decade can be credited to national economic policies. Brazil's macroeconomic stabilization, including the devaluation of the real, was clearly the most important poverty-reducing factor in the 1990s. Increased trade, opening the economy to foreign investment, an increase in the minimum wage, and increased access to social services and assistance have also played important parts.

Only the most recent of the six stabilization plans since 1985, the Real Plan of July 1994, achieved macroeconomic stability and reduced inflation to a record single-digit low.[6] The poor generally suffer most from high inflation, partly because they cannot protect themselves against it because they lack access to the financial and banking systems. So, policies that reduce inflation commonly enhance their incomes. This applies to the poor in Bahia and elsewhere. Differences in inflation among the regions of Brazil are minuscule and cannot be the sole determinant of regional differences in poverty, but inflation does affect the overall poverty trend. In May 1995 the minimum wage was raised while monthly inflation was about 2 percent, which may have reduced poverty.

3. Data and Methodology

This section presents some of the methodology used to analyze the poverty and quality of life in Bahia, but does not attempt a more comprehensive quantitative and qualitative analysis of other forms of deprivation or social exclusion.

The income-poverty measures are designed to count the poor and to diagnose the extent and distribution of poverty. The income-poverty measures proposed by Foster, Geer, and Thorbecke (1984) are used throughout the report. These are the headcount rate (P0), poverty gap (P1), and squared poverty gap (P2) measures. The former measures the magnitude of poverty and the latter two poverty measures assess both poverty magnitude and intensity.

[6] The Real Plan of 1994 (1) introduced an exchange rate anchor with flexibility to move within a band, (2) de-indexed the economy, and (3) implemented tight credit and monetary policies.

The headcount rate is defined as the proportion of people below the poverty line. One concern applying the P0 measure is that each individual below the poverty line is weighted equally and, therefore, the principle of transfers is violated. Hence, it is possible to increase social welfare by transferring money from the very poor to lift some richer poor out of poverty. P0 takes no account of the degree of poverty and it is unaltered by policies that lead to the poor becoming even poorer.

One measure of poverty that takes this latter point into account (at least in weak form) is the poverty gap measures. P1 is the product of incidence and the average distance between the incomes of the poor and the poverty line. It can be interpreted as a per-capita measure of the total economic shortfall relative to the population. P1 distinguishes the poor from the not-so-poor and corresponds to the average distance to the poverty line of the poor. One problem with the poverty gap measure is that it will increase by transfers of money from poor to less poor (who become non-poor), and from poor to non-poor. Furthermore, transfers among the poor have no effect on the poverty gap measure.

The P2 measure of poverty is sensitive to the distribution among the poor as more weight is given to the poorest below the poverty line. P2 corresponds to the squared average distance of income of the poor to the poverty line. Hence, moving from P0 towards P2, more weight is given to the poorest in the population.

This paper sets its poverty bar very low. To define "extreme poverty" it uses the indigence, or "food only" poverty line—those with sufficient income to buy a basic food basket are above the line. The poverty line is based on the monetary value of food items only. This measure is based on the cost of a "minimum food-basket" equal to the FAO minimum caloric intake of 2,288 daily per household member (Rocha 1997). Households are classified as extremely poor if their total income is less than the cost of a basic food basket. In 2001, the poverty line was of R$80.92.

As most poverty studies in Brazil, no adjustment is made for the fact that young children do not need as many calories as adults do. Hence, the poverty rates presented in this paper may slightly overstate poverty in Bahia.

The analysis of poverty correlates is based on a multivariate analysis using the probit regression techniques simultaneously for Brazil and Bahia.

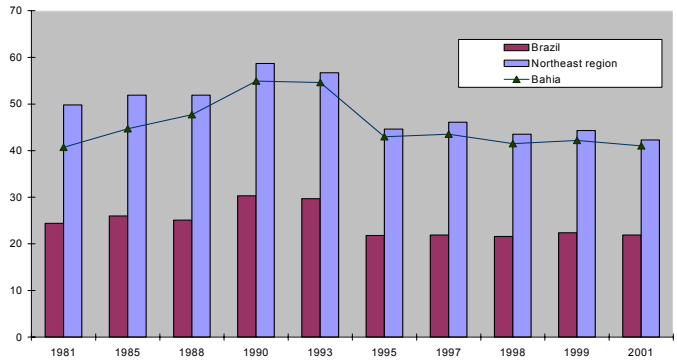
The analysis in this paper is based on available data: PNADs (1981-2001), Censuses (1991 and 2000), IQV (1990 and 2000), *Contas Regionais do Brasil*, *Pesquisa Nacional de Saneamento Básico*, and other data available online such as educational data from MEC/INEP, government spending data from STN/Ministry of Finance and various data from SEI (*Superintendência de Estudos Econômicos e Sociais da Bahia*, an autarchy of the Secretary of Planning in Bahia).

4. Poverty, Income Inequality, and Quality of Life

As Section 2 shows, growth is important, but is not the sole component of a poverty alleviation strategy. Programs are needed to ensure that the poor can take advantage of job opportunities and to protect some vulnerable groups that are not able to participate fully in the economy. In order to design these programs, information on the poor is needed. This sector addresses headcount poverty and its depth, other poverty indicators, inequality, and the quality of life. Due to lack of data and information, this section does not address the broader issues of inequality of assets and opportunities.

In the last decade Bahia has made creditable headway in reducing poverty. During 1993-2001, the state's extreme poverty, measured by P0, fell 14 percentage points (Figure 4.1 and Appendix A show P0, P1, and P2 for Brazil, and the state of Bahia for 1981-2001). There is little room for complacency, however, because extreme poverty is still very high at 41 percent. This translates to over 5 million people who still live in extreme poverty, which means that they do not have sufficient income to buy a minimum basket of food. This is almost twice the poverty rate for Brazil as a whole (21.9 percent).

Figure 4.1: Indigent Poverty Rate (P0), selected years, 1981-2001



Source: Calculations based on selected years of PNADs in 1981-2001.

Poverty did not fall monotonically over the last two decades. The P0 increased from 40.7 in the beginning of the 1980s, increased before the federal government's implementation of the inflation-beating Cruzado Plan of 1986, increased when the plan collapsed, and increased even more during the crisis of 1990 where it hit an all-time high of 54.9 percent poverty rate. The P0 embarked on a downward path only after the most recent inflation-beating Real Plan of 1994 was implemented and the minimum wage increased. There was a sharp decline in poverty to a level lower than at any point during the previous decade. After the Real Plan was implemented, the P0 fell 7 percentage points in Brazil. But Bahia managed to reduce the P0 by the

Northeast average of around 14 percentage points, which is around twice the reduction in the national rate. Since 1996, poverty has remained largely stable only being slightly reduced to around 41 percent in 2001 (Figure 4.1).

The fall in Bahia's social indicators such as infant mortality and adult illiteracy during 1980–99 corroborates the improvement in measured income poverty. The infant mortality rate dropped dramatically from 95.4 per 1,000 live births in 1980 to 45.4 per 1,000 live births in 1999 (Table 4.1). Today the infant mortality rate in Bahia is among the smallest in the Northeast region and mainly a rural phenomenon. The large advances can be attributed to an improved health care system, increased access to treated water (see Section 6), economic growth, urbanization, and past investments in education (see Section 6), and other social programs. Hence, to further reduce the infant mortality rate in order to reach the national average of 35, especially in the rural areas, further actions are called for. These include general livelihood improvements such as access to clean water and sanitation, high quality education and health care, and a daily caloric intake sufficient to cover the basic needs. Moreover, Filmer and Pritchett (1997) find that a 10 percent increase in income is associated with a 6 percent lower infant mortality rate.

Table 4.1: Illiteracy and Infant Mortality, 1980 and 1999

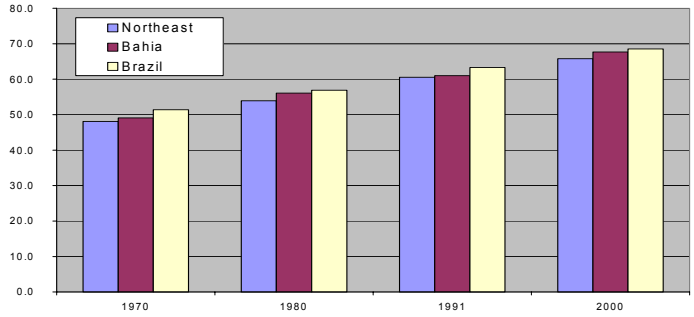
	Illiteracy Rate People Over Age 15 Percent		Infant Mortality Per 1,000 Live Births	
	1980	2001	1980	1999
Brazil	25.3	12.4	85.2	34.6
Northeast	45.9	24.3	131.3	53
Alagoas	54.0	30.6	159.5	66.1
Bahia	**43.1**	**22.9**	**95.4**	**45.4**
Ceará	45.5	24.8	155.2	52.4
Maranhão	51.0	23.4	126.3	54.2
Paraíba	49.3	27.2	170.6	60.3
Pernambuco	42.2	22.0	149.8	58.2
Piauí	49.6	29.4	105.6	45.3
Rio Grande do Norte	44.4	24.2	169.3	48.7
Sergipe	46.5	21.4	110.9	45.4

Adult illiteracy took the same declining path as the headcount poverty rate and infant mortality. During 1980–2001 the illiteracy rate for people over age 15 fell 20.2 percentage points, to 22.9 in 2001. Bahia managed to reduce the illiteracy rate by 55 percent, the largest improvement in Brazil, during 1970-2000. However, Bahia is among the 9 states with the highest illiteracy rate in Brazil. Efforts to lower

illiteracy even further are hampered by the fact that the many of the illiterates are adults the result of years of educational neglect. Efforts to improve adult literacy have been undertaken, but with poor results, because it is more difficult to teach basic skills to adults than to children. Interestingly, in 1999, slighly fewer females are illiterate than males—24.1 percent of females are illiterate as compared to 25.4 percent of males. Similarly, those aged 10 and older have on average 4.1 years of formal education in Bahia—1.5 years less than Brazil as a whole. Even among young adults, educational performance is poor. The education deficit, including that of quality, has a spatial dimension in Bahia. Of the illiterate over age 15, the majority live in the rural areas. In 1999, 40 percent of the rural dwellers could not read or write compared to 8 percent in the metropolitan region of Salvador (Rebeiro 2001).

Life expectancy has increased during the last three decades in Bahia and slightly more than in Northeast region as a whole (see Figure 4.2). However, men in Bahia, as in many parts of Brazil, have significantly lower life expectancy than women. There are no health programs oriented toward men.[7] Other areas of concern include the high levels of alcohol and substance use and abuse by men, and the links between alcohol use and violence.

Figure 4.2: Life Expectancy, 1970-2000



Source: Human Development Indicators.

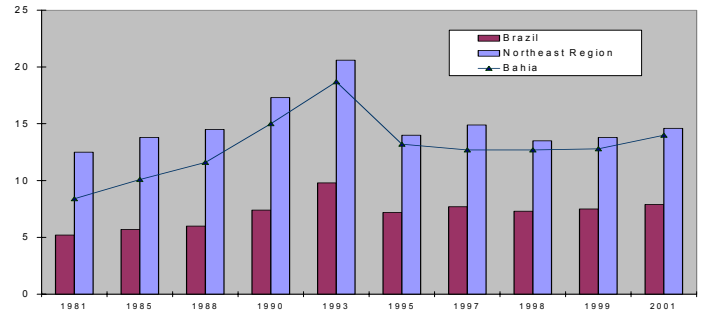
POVERTY DEPTH

Although Bahia has made substantial progress in reducing the share of the population living in extreme poverty, the problem remains broad and deep. The P0

[7] Health programs—including sexual and reproductive and general health programs—have traditionally been directed at women. For example, prevention programs have been established for breast and cervical cancer, but no parallel efforts have been made to address prostate cancer among men. Similarly, reproductive health programs have tended to exclude men. As a result, contraceptive use among men is minimal. Of particular concern is that most men do not report using condoms, which puts them and their partners at risk of contracting HIV/STDs.

measures the proportion of people below a certain poverty line but takes no account of how far they are below that line—the degree of poverty—or whether they are becoming even poorer. To address the situation of the poorest and to evaluate whether their economic situation has improved, the squared poverty gap measure (or P2) is used. This takes into account the degree of poverty, because it gives more weight to the poorest and most vulnerable. The P2 poverty measure reveals that the extreme poverty depth fell 4.7 percentage points to 14 percent during 1993-2001 (Figure 4.3). As a matter of fact, the squared poverty gap measure reveals that poverty was deeper in 2001 than in 1981 (5.6 percentage points), implying that the poorest became poorer. In fact, Bahia has performed slightly worse than the Northeast and Brazil as the squared poverty gap measure increased by 2.1 and 2.7 percentage points, respectively.

Figure 4.3: Squared Poverty Gap (P2), 1981-2001



Source: Calculations based on selected years of PNADs in 1981-2001.

The income of the extreme poor is stagnant. One possible explanation for the recent increase in the depth of poverty could be the drop in average incomes of the extreme poor. Data for 1995-2001 reveal that after the launch of the inflation-beating Real Plan in 1994 average per-capita household incomes fell in all the richest northeastern states, including Bahia (Table 4.2). In 2001, the median income of the extreme poor household heads (R$40) is less than a fourth of the median income of the non-poor (R$180) in Bahia. Moreover, workers in Salvador need to work more hours to be able to pay for a basic food basket. Data published by Dieese reveal that a worker, remunerated a minimum salary per months, needed to work around 140 hours in December 2002 to afford the basket compared to 118 hours in December 2001.[8]

[8] Source: www.dieese.org.br.

Table 4.2: Average Per-Capita Household Income of the Extreme Poor, Selected Years 1995-2001 (R$ of Sep/01)			
	1995	1998	2001
Brazil	41.28	40.69	39.22
Northeast	43.10	42.85	40.15
Alagoas	44.38	43.35	40.50
Bahia	**43.37**	**43.06**	**39.93**
Ceará	43.15	43.29	40.37
Maranhão	37.64	39.91	40.20
Piauí	37.76	38.33	36.42
Pernambuco	45.71	43.37	40.13
Paraíba	43.09	44.53	41.61
Rio Grande do Norte	45.15	45.30	41.19

Note: Poverty Line in 2001: R$80,92.
Source: Authors calculations based on PNADs 1995-2001.

Household heads with no income increased during 1992-2001 (Table 4.3). In 2001, 9 percent of household heads had no income - up 1.3 percentage points since 1992, although the household heads had attained more education.

Table 4.3: Household Heads with No Income, 1992 and 2001

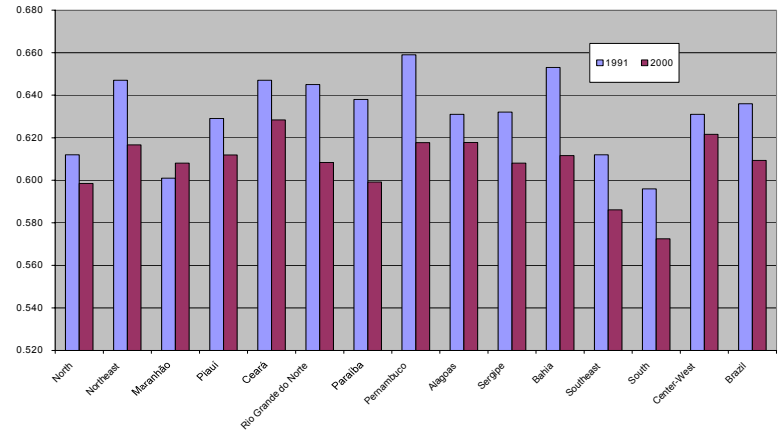
Bahia	**1992**	**2001**
total household heads (a)	2,859,318	3,592,317
no income head (b)	221,109	322,625
(b) / (a)	7.7%	9.0%
average age	38.6	37.0
average years of education	2.9	4.3
Northeast		
total household heads (a)	9,961,578	13,125,390
no income head (b)	755,077	1,249,656
(b) / (a)	7.6%	9.5%
average age	37.2	36.6
average years of education	3.2	4.1
Brazil		
total household heads (a)	24,189,737	49,425,994
no income head (b)	1,620,561	4,016,608
(b) / (a)	6.7%	8.1%
average age	38.3	38.0
average years of education	3.8	5.1

Source: Author's calculations based on PNAD 1992 and 2001.

INCOME INEQUALITY

Part of the reason why the poverty indicators of Bahia and those of the nation as a whole are worse than in other countries with similar per-capita incomes is because of income inequality. Both Brazil and Bahia have an extremely unequal income distribution. Moreover, Bahia's income inequality has not changed during the last decade and is stubbornly high. In 2000, the Gini coefficient for Bahia was 0.61, slightly below the coefficient for the Northeast region (0.62), and in line with Brazil as a whole (Figure 4.4). It is worth noting that international research shows that the more unequal income is distributed the less effective is economic growth in reducing poverty (Lustig et al 2001).

Figure 4.4: Gini Index of Income Inequality, 1991 and 2000

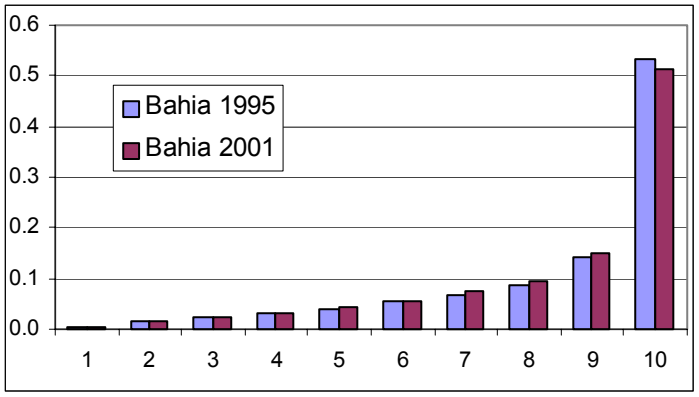


Source: Census 1991 and 2000.

Changes in inequality are typically very slow, except during periods of radical social and institutional change. Where inequality has fallen it has usually happened in association with major expansion and equalization in educational attainment, as in Korea and Malaysia in the 1970s and 1980s. Bahia's expansion in education (reduction in education inequalities) may have been too recent to have a significant effect on the composition of skills, and occurred during a period in which the overall returns to high levels of skills were rising and returns to basic skills were falling in Brazil.

In Bahia, the income distribution reveals that both the top and the very bottom of the income distribution receive a smaller share of total income in 2001 than they received in 1995. However, in 2001, the top 10 percent of the income distribution still obtain 49 percent of the total income compared to the 12 percent obtained by the lowest 50 percent of the distribution (Figure 4.5). Education is also unequally distributed and international research shows that this can more easily be reduced than income inequality. However, research also shows that a reduction in education inequality affects the income distribution very little in the short run (Ferreira 2002).

Figure 4.5: Share of Income Per Decile; Bahia 1995 and 2001

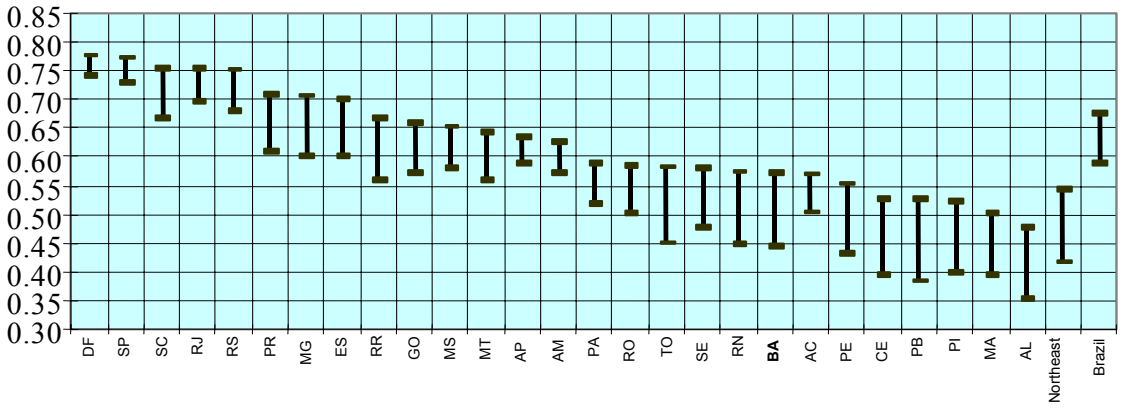


Source: Author's calculations base on PNAD 1995 and 2001.

QUALITY OF LIFE

This section presents an analysis of the quality of life in Bahia. The quality of life index (*indice de qualidade de vida*-IQV) is a composite index containing 21 indicators of socio-economic well being related to outcomes in sectors such as education, health, and water supply.

Figure 4.6: The Quality of Life Index, 1991-1999



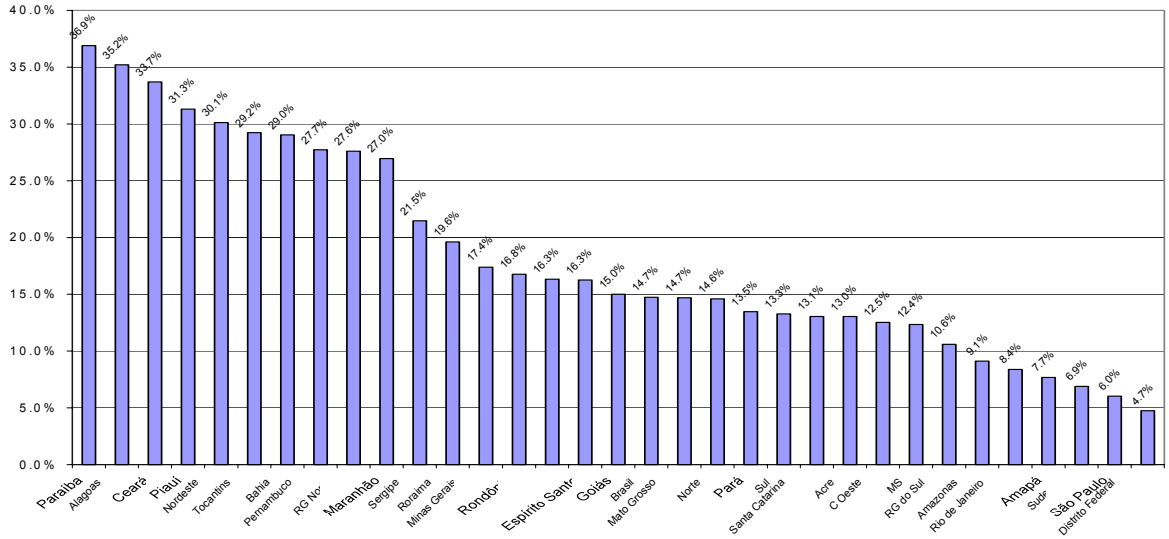
Source: IPLANCE data.

The length of the bar in Figure 4.6 indicates the advance made in a state during 1991-1999. Hence, the bottom of the bar shows the IQV in 1991 and the top the IQV in 1999. Great advances have occurred throughout the period and the poorest states have made much greater advances than rich states in Brazil.

During the 1990s, Figure 4.7 reveals that the northeastern states have greatly improved. Bahia experienced an increase of 29 percent in IQV close to the average of the Northeast (30 percent), which is double the improvement in the quality of life

in Brazil as a whole (14.7 percent). This indicates that a possible catch-up effect in the quality of life is at play in Brazil.

Figure 4.7: Growth rate of the Quality of Life, 1991-2000



Source: Calculations based on IPLANCE data.

5. Poverty Profile

After counting the poor we need to know who they are, where they live, and what they do. Comparing average levels of poverty for different categories is useful for learning about which population groups are falling behind or catching up in terms of poverty. This is useful for the design of policies: we would like to know not only whether, for example, more- or less-educated people are more likely to be poor in Bahia, but how the relative odds of being poor have evolved for these groups. This section traces the evolution of the P0 for various population groups during 1981-2001. The poverty profile constructed is based on data from the Brazilian household surveys (PNAD). The main questions addressed are: (1) who are the poor, (2) what are the characteristics of poor households, (3) where do they live, and (4) where do they work.

The structure of poverty is clear in Bahia: (a) blacks and mulattos are poorer than whites, (b) young households/household heads are poorer than older households/household heads, (c) the poor tend to work more in the informal sector, and (d) a greater share of those engaged in agriculture are poor as compared to industry or services. Furthermore, the deepest poverty is in rural areas, and among the poorly educated, and young household heads with children. In fact, since 1995, the P0 is actually rising for these groups. Without interventions to improve their opportunities and assets, their plight is likely to worsen. The social protection measures described in Section 6 are particularly relevant for them.

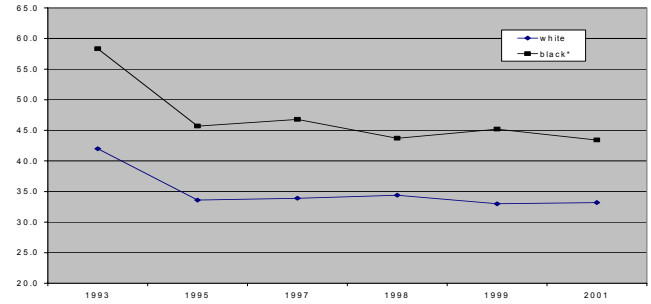
Table 5.1: Poverty Profile for Bahia, 1981-2000

Bahia Poverty Profile		1981	1985	1988	1990	1993	1995	1997	1998	1999	2001
Headcount		40,7	44,7	47,7	54,9	54,6	43,0	43,5	41,5	42,2	41,0
Characteristics of the Head											
Gender	male	40,6	45,4	47,5	54,3	54,8	43,3	43,6	41,8	42,2	40,8
	female	41,1	41,5	48,3	57,1	53,9	42,3	43,2	40,8	42,3	41,8
Race	white			40,4	44,6	42,0	33,6	33,9	34,4	33,0	33,2
	black			51,7	63,7	55,7	42,1	44,8	45,2	43,7	42,1
	mulatto			49,5	57,3	58,8	46,3	47,2	43,4	45,5	43,7
	indigenous					77,6	70,8	38,5	47,8	38,9	23,2
	asian			11,2	0,0	48,0	0,0	20,5	36,8	47,6	43,1
Age	<25	33,9	45,6	47,3	59,0	72,0	58,5	64,2	60,9	60,2	63,5
	25 to 45	45,1	48,0	50,2	54,7	60,4	49,6	50,0	48,2	49,5	50,2
	45 to 65	38,0	42,9	46,5	53,4	52,3	40,4	39,5	38,1	39,6	34,5
	>65	35,7	37,6	42,6	56,7	33,3	20,8	24,5	17,1	17,4	13,1
Location	urban	32,7	31,4	34,8	43,7	46,7	36,5	37,3	35,3	36,6	35,7
	rural	49,7	60,4	64,4	70,0	68,3	54,9	54,3	53,0	52,4	53,5
Read and Write	Yes	31,9	35,5	37,0	42,5	48,8	37,4	38,1	36,4	38,0	37,1
	No	52,6	56,9	65,1	73,7	65,0	53,5	54,0	52,2	50,9	50,2
Years of Schooling	none or less than 1	51,3	56,4	63,2	71,9	64,1	52,4	53,1	50,6	49,7	47,9
	1 to 4	45,8	53,8	54,8	62,9	63,7	48,2	50,9	48,5	49,1	51,3
	5 to 8	26,3	27,9	34,6	44,0	51,4	39,5	42,7	37,9	41,0	42,4
	9 to 12	8,2	8,3	14,1	17,1	25,3	18,6	18,9	20,9	23,8	21,8
	more than 12	0,2	1,0	2,4	4,0	7,0	2,7	1,8	1,2	2,2	2,3
	NA	25,6	21,2	26,6	67,7	66,7	42,5	0,0	64,3	42,0	56,2
Signed workbook	yes	25,4	28,2	28,2	42,4	41,7	33,5	29,7	28,9	27,8	25,0
	no	55,3	58,4	63,7	71,8	77,5	58,1	59,0	56,8	61,2	57,0
Economic. Active	yes				53,9	56,4	44,9	45,3	43,0	44,4	43,2
	no				59,5	46,8	35,6	37,3	35,7	33,9	33,4
Working	yes	41,0	45,6	47,6	53,9	55,4	42,9	44,0	41,3	42,5	40,7
	no	39,4	40,7	48,0	58,6	52,0	43,4	42,3	42,2	41,5	42,1
Work Position	employee	39,0	42,6	45,7	55,9	56,9	42,8	42,0	40,8	42,6	39,5
	self-employed	45,1	52,3	53,1	56,5	57,0	45,3	48,7	44,8	44,9	44,6
	employer	5,4	6,1	12,4	16,0	15,0	7,6	3,5	6,7	8,1	8,7
Employment Tenure	<1				53,5	55,2	43,0	44,0	41,2	42,3	40,6
	>1				52,8	52,2	40,9	42,4	39,5	40,6	38,7
	1 to 3				52,2	55,9	43,7	44,4	43,3	42,3	40,0
	3 to 5				48,2	50,4	42,3	40,4	40,2	39,3	36,4
	>5				53,0	51,1	39,8	41,9	38,2	40,0	38,6
Work Sector	Agriculture	51,6	62,6	66,3	71,3	69,5	60,0	60,8	56,3	58,3	58,5
	Industry	32,1	35,0	37,7	47,2	52,8	37,9	35,5	36,9	39,3	34,7
	Service	31,4	29,5	31,6	38,6	43,3	31,3	32,9	31,7	29,9	32,4
	Social	21,0	18,8	23,9	32,9	30,3	20,7	25,9	22,0	20,1	16,3
	Public	23,7	26,3	31,7	43,8	44,0	26,9	25,1	23,8	20,1	19,8
	Other	10,7	17,5	11,2	17,6	33,2	23,2	36,0	38,7	34,4	26,0

Source: Author's calculations based on PNAD 1981-2001.

Blacks and mulattos are poorer than whites in Bahia. The poverty profile for 2001 reveals a large difference in the levels of well being among different groups. The P0 reveals that 42 and 44 percent of households headed by blacks and mulattos, respectively, are extremely poor compared to 33 percent of households headed by whites (Figure 5.1). During 1993-2001, poverty fell 8 percentage points among households headed by whites and 14 and 13 points, respectively, among those headed by blacks and mulattos, which is largely in line with the Northeast region as a whole.[9]

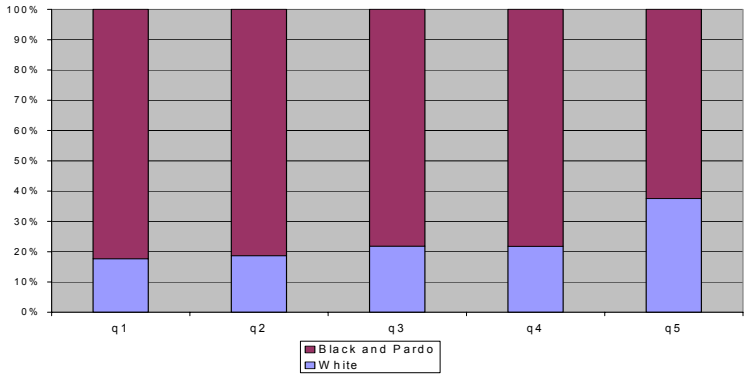
Figure 5.1: Headcount Poverty by Race
Bahia 1993-2001



Source: Author's calculations based on PNAD.

However, there is little room for complacency. As Figure 5.2 shows, blacks and mulattos are still overrepresented in the low-income quintiles and underrepresented in the wealthiest quintile in Bahia in 2001.

Figure 5.2: Racial Distribution of Population
by Income Quintile in Bahia, 2001

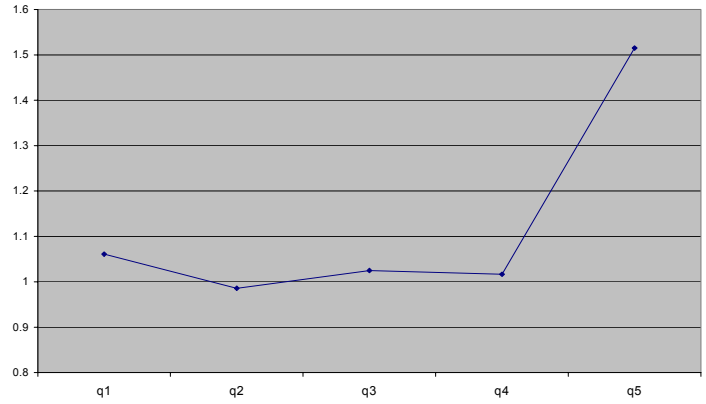


Source: PNAD 2001

[9] For a detailed description of the poverty profiles for Brazil and the Northeast, including Bahia 1981–99, see Fiess and Verner (2001).

The average income ratio between whites and blacks and mulattos reveals that, in the top 20 percent of the income distribution, white household heads earn an average 50 percent more than black and mulatto household heads (Figure 5.3).

Figure 5.3: Average Income Ratio of Whites and Blacks & Mulattos, Bahia 2001



Source: Calculations based on PNAD 2001.

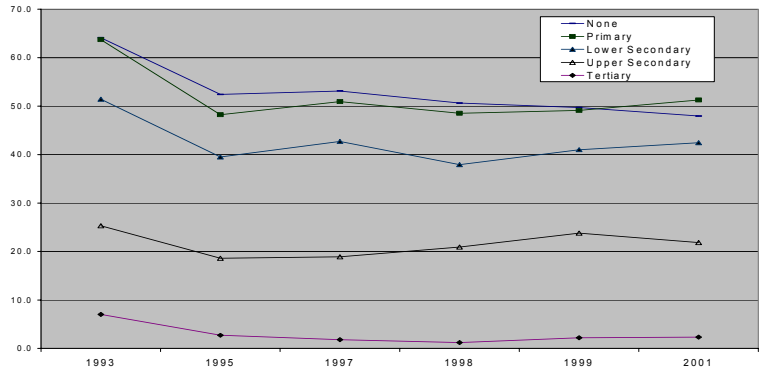
Education levels are strongly related to poverty. That is, being able to read and write is important in determining the likelihood of being in poverty. In Bahia, the P0 is 37 percent for household heads that are literate, and 50 percent for those that are not. These headcounts are high compared to the national averages of 19 and 39 percent, respectively. However, while a negative relationship between years of education completed and poverty is typical, it is less marked in Bahia and the Northeast.

There appears to be relatively little difference in P0 between household heads with no education (48 percent) and household heads with completed primary education (42 percent). Nevertheless, household heads that have completed secondary education are much better off (22 percent are poor) than those with only primary education. Of the household heads with more than 12 years of schooling only 2 percent were extremely poor in 2001, down from 7 percent in 1993. These findings indicate that education is a very important key to poverty reduction in Bahia.

The gap in P0 between the educated and less educated is widening: the more educated are experiencing less poverty, while the less educated are getting left behind. For each level of education (lower primary only, upper primary only, secondary only, and tertiary) the likelihood of being poor is estimated for Bahia. Figure 5.4 shows that there are very large differences in poverty levels by education, and that they have increased over time: since 1995, the P0 for people with primary and secondary education appears to have increased, while the P0 for people with some university education stabilized at its already very low level. In Bahia, as elsewhere, there is a great deal of debate about the causes of these changes: skill-biased technological change, changes in the relative supply of and

demand for workers with different characteristics, and trade liberalization have all been mentioned as possible explanations (Blom and Velez 2001; Blom, Pavcnik, and Schady 2001).

Figure 5.4: Poverty Headcount (P0) and Education Level Attained, Bahia, 1993-2001



Source: Calculations based on PNAD 2001.

The younger the household head, the poorer the household. Data reveal that 64 percent of the households headed by a person younger than age 25 are extremely poor in Bahia. Moreover, it is worrisome that they are getting worse off. The poverty rate for these households rose 5 percentage points during 1995–2001 and nearly doubled in the last two decades. This is slightly better than the Northeast as a whole, where 66 percent of the households headed by a person younger than age 25 are extremely poor. However, P0 increased by 22 percentage points during 1981-2001 in the Northeast region, hence less than in Bahia. Targeted social protection measures that relate to youth employment, family planning, and pre-school programs could help improve employment prospects of young people (see also below).

Elder household heads are far less likely to experience poverty than younger household heads. In Bahia, only 13 percent of those households headed by a member older than age 65 are below the indigent poverty line—a decline of 20 percentage points since 1993. Additionally, the latter group has the highest average income of any age group, which may be explained in part by pension reforms. The P0 of the population groups aged 25 to 44 and 45 to 64 fell by 10 and 18 percentage points, respectively, during 1981–01. In 2001, 50 percent of the younger group was extremely poor as compared to 35 percent of the older group. Thus the younger the head of household, the more likely it is to be poor. This life-cycle profile of poverty illustrates that many households are born poor (mainly due to inadequate assets), with some escaping poverty as they accumulate more assets or as their household size shrinks.

The age of household members affects household poverty negatively. The more young children there are, the poorer the household. Among households with children under age 5, 68 percent were extremely poor compared to 50 percent of those with children aged 5 to 15. Among households with a member older than age 65 the rate drops even further, to 15 percent. During 1981–01, the rate of extreme poverty among households with children under age 5 rose 23 percentage points and for households with children aged 5 to 15 it rose 16 percentage points. The P0 shows striking differences by age group: it is more than four times higher for children under age 5 than for people older than age 65.

Young parents with low income, low level of education, and few assets may also suffer poor health. Their children receive low-quality education, and the parents have no access to kindergartens for the youngest offspring. Such young parents face a high probability of becoming unemployed, and have no access to employment benefits or other social benefits.

The difference in poverty rates has gone up over time: since 1995, the poverty rate for children appears to have gone up, while the poverty rate for the old appears to have fallen. Very young children have the highest—and growing—probability of being poor in Bahia as elsewhere in the Northeast region. Currently the percentage of poor children under age 5 is three times higher than their share in the overall population. There is considerable evidence from other settings that the benefits associated with early childhood interventions are very high indeed, especially for children from disadvantaged backgrounds, both because this is a critical stage in child development and because the returns to any productive investment in children accrue over a much longer period of time than the returns to productive investments in adults (see Heckman 1999; Currie 2001). This suggests that interventions that benefit children should receive high priority.

Informal workers suffer more poverty than formal workers. The P0 for informal workers (*sem carteira assinada*–without a signed workbook) is high, 57 percent compared to 25 percent for formal workers. The informal poor, many of whom live in the urban periphery, earn a low and irregular income, own very few assets, and have no insurance against poverty. They face risks in the form of unemployment, crime, violence, and overall economic downturns. Moreover, in the last two decades, poverty rates have increased by 2 percentage points among informal workers and are unchanged among formal sector workers. However, since 1995 the P0 fell 8 percentage points for formal sector workers while the P0 for informal sector workers is pretty much unchanged. At the same time, it should be recognized that since very few people work in the formal labor market, social policies tied to formal employment or unemployment will have only very limited reach among the poor. Social protection policies need to allow informal workers to avail of them, while simultaneous efforts needed to be made to encourage formal sector growth.

Female-headed households are only marginally more likely to be poor than male-headed households, with 42 percent and 41 percent of female- and male-headed households, respectively, likely to be poor. Since 1995, female-headed households have experienced no reduction in poverty and male-headed households a marginal reduction (2 percentage points). These income poverty figures are, however, only part of the myriad of factors that affect a poor woman's well being. The data do not reveal anything about domestic violence and other types of discrimination that women often face, nor the fact that women should have higher incomes, as they tend to have more education than men.

Those who work in agriculture are far more likely to be poor than others. This suggests that productivity in agriculture is lower than in services or industry. The P0 is 59 percent in agriculture, but 32 percent among service workers, and 35 percent among industrial workers. Moreover, the agricultural workers' poverty rate increased by an astounding 7 percentage points in the last two decades as compared to 3 percentage points in industry and services. This development pattern is different to the one in Northeast region in the same period. In the Northeast P0 in agriculture and industry fell by 2 and 11 percentage points respectively.

Historically, poverty in Bahia has been closely associated with agriculture. In 2001, 52 percent of the extreme poor household heads cited agriculture as their primary form of employment. The main explanation for the increased poverty rate in agriculture can be traced to migration out of the sector and into services by some of the most skilled and, in part, to the structure of land ownership and the quality of land and climate. Rural land ownership is characterized by a high degree of concentration of land in few large establishments and a large number of small farms with an insufficient area to sustain a family by agricultural employment alone. In the last 50 years, the land concentration increased. The area occupied by farms of over 1,000 hectares has grown faster than the area of farms of smaller size (World Bank 2001b).

The most skilled agricultural workers shifted employment out of agriculture toward higher wage service jobs. In 2001, 27 percent of the poor worked in services, mainly in domestic service, repair, restaurants and hotels, and commerce and 15 percent in industry.

Rural poverty fell in recent years but it is still larger than urban poverty. One-third of Bahia's population lives in rural areas, with limited access to basic infrastructure and services[10]. The rural poor are primarily smallholders, sharecroppers, and informal wageworkers that depend on a diverse strategy of income-generating activities in which the subsistence production of corn, beans, manioc, rice, and small livestock predominates. In the semi-arid and transition zones, rainfall is

[10] Bahia is among the most urbanized states in the Northeast, and became more so during 1991–2000, with the percentage of the population living in urban areas rising from 69 percent to 73 percent.

scarce and highly irregular, yielding crops of low quality and low income generating capacity. These small farmers lack modern production technology, basic infrastructure to store harvests to take advantage of cyclical price fluctuations, technical assistance to improve productivity, and organized marketing facilities. Family income is therefore highly variable and there is little opportunity for saving. They have very few assets, including education, and are very vulnerable. Despite the limitations, poverty in rural areas has been reduced during 1995-2001 by 3 percentage points to 52 percent. In the same period, urban poverty remained unchanged at 37 percent.

The differing characteristics of the smallholders, sharecroppers, and wageworkers suggest that a poverty reduction strategy needs to provide multiple paths out of poverty tailored to the heterogeneous cross-section of poor rural households. A national study for Brazil[11] suggests that this will involve at least a five-pronged approach aimed at: (i) small farm sector intensification, (ii) improved employment opportunities in dynamic commercial agriculture, (iii) growth of the rural non-farm sector, (iv) migration of the young, and (v) provision of safety nets for those "trapped" in poverty. The recommended measures include improving human capital endowments, reforming the land, labor and financial markets, enhancing research and extension, improving the supply of public goods and services, pricing and trade policies, and transfer programs.

In order to increase land productivity and labor-intensive farming, it is necessary to facilitate the movement toward farming medium-sized land holdings, in part via facilitating land rentals and sharecropping arrangements.[12] This can be done by providing more secure titles to land and by the revision of the land legislation so as to secure longer-term tenancy arrangements, resolution of disputes regarding interpretation, and enforcement of land rental arrangements. The impact of such a program would be greatly enhanced by simultaneous adjustments of the labor code and of the land tax system. Labor laws have had an anti-sharecropping bias. In this context, the experience with the Rural Leasing Exchange in the Triângulo Mineiro contains useful lessons that are worth considering for Bahia.

A more direct way of improving farm productivity and revenues is via the community-based approach to land reform. Under this approach, beneficiary groups negotiate directly with potential sellers of suitable properties, and then obtain financing for the purchase of the land and complementary sub-projects and receive technical assistance. Two successful pilot projects—the Ceará Rural Poverty Alleviation Project and the Cédula da Terra—redistributed about 640,000 hectares to benefit about 23,700 households using this approach (about 1 percent of the rural poor).

[11] See World Bank (2001c).

[12] See World Bank (2001c).

6. Access to Services and Assets

The problem of poverty and inequality in Bahia largely reflects disparities in opportunity. The distribution of key productive assets – labor, human capital, physical assets, financial assets, and social capital – is highly unequal. These disparities are most prevalent between the poor and non-poor, but also manifest themselves differently by geographic area. Also access to services is unequal. This section addresses a few of these areas, namely labor, education, basic infrastructure services, and social assistance and analyzes the coverage of selected social programs by income quintile, which shows the share of the population (or sub-group of population) in each quintile that receives a given service in Bahia.

LABOR

Labor is the poor's most abundant asset and it accounts for nearly all of their total income. Nonetheless, the poor are constrained in their use of this asset in a number of ways: (1) high level of unemployment, (2) a strong correlation between informal sector employment and poverty, and (3) black and female workers face probable wage discrimination. Table 6.1 shows that formal sector employment has not been able to keep up with population growth in Bahia.

The poverty analysis reveals that many workers in Bahia, particularly those in the informal sector, are poor (see Sections 5 and 7). The challenge of creating employment is therefore to increase the number of jobs that are able to provide sufficient income to lift the employee's household out of poverty or cushion against it. Creating jobs regardless of quality is not enough—people need good jobs. As the labor market, particularly the informal one, is relatively flexible, the worry is about generating sufficient income via employment rather than simply having a job. The trend in this regard, as reflected by decreasing real wages of informal workers, is discouraging.

The demographic change that demands the most urgent policy response is the sizeable growth in the economically active population. During 1992–1999 the number of those aged 14 and older rose by more than 3.2 million. Some of the growth in the economically active population is from in-migration, but most of it is natural growth. The high rate of growth of this age cohort—along with increasing female participation in the labor force—means that a high number of good new jobs are needed each year to keep pace, and better jobs are needed by those already in poor jobs. This is a major challenge.

Table 6.1: Employment in Bahia, 1992 and 2001			
Sector	Total 1992	Total 2001	Annual Growth (percent)
Industry	**659,116**	**754,809**	**1.52**
Formal	432,777	490,871	1.41
Informal	23,007	18,133	-2.61
Self-employed	174,994	220,279	2.59
Employer	28,338	25,526	-1.15
Services	**1,839,542**	**2,427,415**	**3.13**
Formal	845,716	1,190,824	3.88
Informal	111,185	103,986	-0.74
Self-employed	827,510	1,034,397	2.51
Employer	55,131	98,208	6.63
Agriculture	**2,457,009**	**2,172,201**	**-1.36**
Formal	664,786	648,338	-0.28
Informal*	835,935	630,093	-3.09
Self-employed	921,849	845,377	-0.96
Employer	34,439	48,393	3.85
Other	**209,662**	**313,113**	**4.56**
Public sector	145,647	243,343	5.87
Other formal	46,347	40,240	-1.56
Other informal	-	1,386	-
Self-employed	16,740	27,933	5.85
Employer	928	211	-15.17
TOTAL	**5,165,329**	**5,667,538**	**1.04**

Source: SEI, based on PNAD 1992/2001. People age 10 or older, occupied in the reference week, by position in the primary job, by gender, and by fields of activity of the main job - Bahia

Informal jobs pay lower salaries than formal jobs during 1995-2001. Informal sector workers in Bahia receive an average monthly wage income of R$256 and no social benefits compared to formal sector workers that earn R$595 and social benefits. Moreover, the informal sector earnings fell nearly 10 percent during 1995-01. Increased informality could be one of the main reasons why the income of the lowest 20 percent fell in the 1990s (see Table 6.2).

Table 6.2: Real Average Earnings, 1995 and 2001			
Brazil	**1995**	**2001**	**Change 1995-01 Percent**
Formal	796.1	692.8	-13.0
Informal	393.0	393.2	0.0
Self Employed	633.8	533.5	-15.8
Northeast			
Formal	584.7	533.1	-8.8
Informal	270.2	268.0	-0.8
Self Employed	370.5	335.5	-9.4
Bahia			
Formal	604.1	594.8	-1.5
Informal	282.61	256.11	-9.4
Self Employed	419.53	364.07	-13.2
Source: Author's calculation based on PNADs 1995 and 2001.			

In the longer term, the slowdown in Bahia's population growth (see Section 2) will affect poverty through its broader effects on the labor market. The rapid population growth experienced in previous decades has resulted in an elastic supply of unskilled labor. As a result, wage levels have remained low -- except for high skill, well educated workers --even in times of high economic growth. Bahia's lower fertility rate will eventually moderate this factor. Declines in the growth of the labor force will reduce the supply of labor. This may result in increasing pressure on wages, which in turn may prompt the substitution of capital for labor, increasing labor productivity, and setting off a virtuous cycle of rising wages and rising productivity.

The state government should support the federal government's attempts to reform the labor code in order to reduce costs of employment creation in the formal sector. The labor code in Brazil relies more on a rigid legislative code than on collective bargaining. The reform of the labor code is the best way to encourage increased formal employment, which should also help reduce the formal/informal divide. By shifting that balance, Brazil could reduce labor turnover, increase productivity, decrease payroll costs, expand the formal labor market and social security coverage, and lessen the reliance on litigation. Possible measures would entail realigning incentives for hiring, retaining, and firing workers and relaxing rules, including mandated minimum non-wage benefits, to leave more to decentralized collective bargaining.

Child labor is still a severe problem in Bahia as well as in the Northeast as a whole. International evidence shows that child workers tend to be poor and complete fewer

years of schooling than their non-poor counterparts. Children should not have to work, but an estimated 250 million children are working worldwide. Child labor is one of the most devastating consequences of persistent poverty. Data reveal that 24 percent of children in Bahia worked in 1999 down from 29 percent in 1992 (Table 6.3). Bahia is in line with the region as a whole but around 35 percent above the national average. However, the majority may be both working and studying. Vital to achieving progress against harmful child labor are: (i) effective efforts to reduce poverty generally; and (ii) the economic and social policies, programs, and results that are the underpinning for success in poverty reduction. But these broad measures, while important, take time and are not sufficient by themselves. Additional actions focused specifically on child labor per se are also needed such as an expansion of PETI (see below).

Table 6.3: Child labor, 1999

Brazil	**16.6**
Northeast	**24.5**
Maranhão	35.8
Piauí	31.0
Ceará	24.6
Rio Grande do Norte	13.3
Pernambuco	22.1
Bahia	**24.0**

Source: Data from http://www2.ibge.gov.br.

EDUCATION

Education is key to poverty reduction. Increased educational attainment can improve the livelihoods of the poor and reduce the likelihood of becoming poor, as shown above. More education is also a key factor in obtaining a higher income. Furthermore, education is associated with fertility: the more education a woman attains, the lower her fertility rate and, therefore, the lower the dependency ratio and the lower the likelihood of falling into poverty. Therefore a clear message is that the *Bahianos* need to be brought up the educational ladder to escape poverty.

Furthermore, human capital – education and health - is an important complement to labor, boosting its productivity and potential for income generation. Each year of schooling yields an increase in hourly earnings. Disparities in education are key causes of poverty and inequality. Education is also a crucial elevator for the poor to lift themselves out of poverty (see Sections 5 and 7). Higher educational attainment for a household head significantly reduces the probability of being poor.

Bahia has made impressive progress in education and in 2002 more than 97 percent of children and youth aged 7-14 are in school. Since the number of those under age 14 is not growing (see Section 2), Bahia has been presented with an excellent opportunity to increase access of the poor above 4th grade and improve the quality

of primary education. Bahia, as other states of Brazil, has seized the opportunity effectively. At both the national and state level, governments have raised education's share of the public budget and introduced policy changes aimed at improving access to primary education, increasing enrollment in secondary school, and diminishing regional disparities. Although progress has been made in increasing educational attainment over time, gaps remain for the poor and blacks and mulattos.

In Bahia, school enrollment for the 7 to 14 age group is high and in line with the Northeast and Brazil as a whole (Table 6.4). Enrollment of children from poor households is slightly lower, 93.5 percent in 1999. In older age groups Bahia is ahead. Enrollment for ages 15 to 17 in Bahia is 79 percent, above regional and national averages. While primary enrollment rates have sharply increased in the last decade, completion is still a challenge.

Table 6.4: School Enrollment, 1999

Age	Brazil	Northeast	Bahia
5–6	70.9	76.9	74.5
7–14	95.7	94.1	95.0
15–17	78.5	76.7	79.2
18–19	51.9	52.8	58.1
20–24	25.5	26.3	28.1

Source: Síntese de Indicadores Sociais, 2000, IBGE.

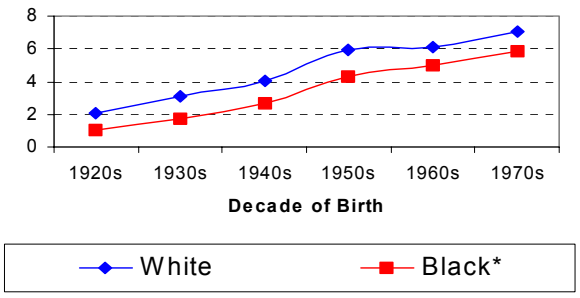
School attendance of poor students increased but they still lag behind. In Bahia, as in the rest of Brazil, children from richer households have on average a higher school attendance, are less likely to repeat a school year, and have more completed years of schooling than children from poor households. Data reveal a strong correlation between poverty and educational attainment in the Northeast. The level of education of the extremely poor is the lowest, and it is also increasing more slowly than average. Average years of effective education of the total active population in Brazil increased by almost 2 years, from 4.5 years in 1981 to 6.4 years in 1999. In 1999, average years of effective education of the total population in Bahia increased by 1.5 years, from 3.2 years in 1981 to 4.7 years in 1999 (Table 6.5). For the indigent poor—with per-capita family income below the indigence poverty line—it increased slightly less, from 1.9 years in 1981 to only 3.1 years in 1999. This shows that school attainment of the poor is increasing fast, but the gap between the poor and non-poor in school attainment is not closing.

Table 6.5: Years of Effective Education, Total and Indigent Population, 1981 and 1999				
	1981		1999	
	Total	Indigent	Total	Indigent
Brazil	4.46	2.19	6.41	3.78
Maranhão	2.57	1.72	4.28	2.88
Piauí	2.43	1.56	4.14	2.78
Ceará	2.84	1.61	4.75	3.15
Rio Grande do Norte	3.48	1.95	5.57	3.69
Paraíba	3.37	2.03	5.46	3.06
Pernambuco	3.47	2.05	5.36	3.46
Alagoas	2.61	1.6	4.67	2.83
Sergipe	3.02	1.64	5.42	3.46
Bahia	**3.15**	**1.86**	**4.69**	**3.09**

Indig: Below indigence poverty line. *Note:* Effective education evaluated as years of completed education.
Source: Calculations based on PNAD 1981 and 1999.

Students in rural areas lag behind their urban counterparts. Tremendous strides have been made in improving access of the poor to basic education. However, inequalities remain between rural and urban dwellers. The primary school students in rural areas attained 0.8 years less education than their urban peers, but the gap is closing as it came down from 1.3 in 1992. The rural poor tend to lag behind their urban counterparts in their access to services because of their initially lower starting point and greater improvements in service delivery in urban areas.

Figure 6.1: Average Years of Schooling by Decade of Birth, Bahia



Source: Calculations based on PNAD 2001.
* "Black" includes mulattos too.

Blacks and mulattos have accumulated less human capital than whites. Figure 6.1 shows clearly that average years of education have increased for both groups but the educational gap is not closing. The gap is largest for the cohort born in the 1950 (2.7 years) and smallest for the cohort born in the 1920s (1 year). Unfortunately, the gap between blacks and whites born in the 1970s is slightly larger (1.17 year) than

the gap experienced by the cohort born in the 1960s (1.05 years). It would be more sensible to target social policies toward the poor rather than to consider affirmative action programs. Yet there is room for special actions to increase school attendance and improve the health of blacks and mulattos. In education one option would be to introduce schoolbooks and materials that better reflect the reality of blacks and mulattos. White people in Brazil live much longer than black people do (data from IBGE).

While the quality of education as reflected in test scores, repetition rates, age-grade distortion, school attainment, and functional literacy leaves much to be desired, the schools themselves and the qualification and dedication of the teachers in the Northeast were found to be generally good, though the teachers did not always make the best use of school time. This suggests that targeted teacher training may be useful in Bahia and the region as a whole.

Table 6.6: State Spending on Education (as share of GDP) 1995 and 2000

	1995	2000
Alagoas	3.4	3.7
Bahia	**2.6**	**2.7**
Ceará	2.7	3.7
Maranhão	5.0	3.3
Paraíba	3.4	5.0
Pernambuco	1.8	1.4
Piauí	4.8	5.0
Rio Grande do Norte	3.4	5.1
Sergipe	4.1	4.5

Source: STN (Ministério da Fazenda) and IBGE.

The state government has shown its commitment to improving education in Bahia.[13] Education spending has been steadily increasing and so has its share of GDP. In 2001, Bahia spent R$1.6 billion on education, which was 19.2 percent of total spending that year, and a real increase of 12.6 percent over 2000. Education's share of total GDP increased 0.1 percentage point to 2.7 percent during 1995–2000 (Table 6.6 and Appendix B). Currently, Bahia spends a lower share of its income (2.7

[13] The progress made in recent decades has been due to increased resources devoted to education, increased priority placed toward primary education, increased responsibility given to municipalities for education delivery, and a number of federally-funded programs. At present, about half the public funding for education is provided by the state, about 30 percent by municipalities, and the remaining 20 percent by the federal government, usually through programs implemented by municipalities.

percent of GDP) on education than most northeastern states. Only Pernambuco spends less (1.4 percent of GDP). The states of the Northeast that are poorer than Bahia spend up to 5 percent of their GDP on education.

In Bahia, spending per student was R$637 at the preschool level (the highest spending among northeastern states), R$450 at the primary level (a fifth of what was spent in the Federal District), R$488 at the secondary level, and R$7,642 at the tertiary level (Table 6.7). This indicates a distortion in spending, biased toward the higher levels of education and regressive in nature, because far more students from the top income quintiles attend secondary and tertiary education than students from lower-income quintiles (see also Figure 6.2).

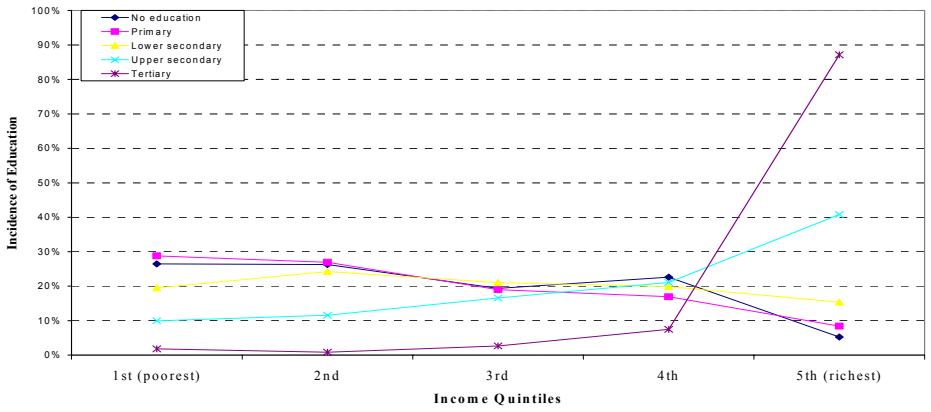
Table 6.7: Education Spending (Average Spending Per Student) in Preschool, Primary, Secondary, and Tertiary, 1998 (R$)

	Pre.	Pri.	Sec.	Ter.
Northeast	*516*	*465*	*597*	*7,549*
Bahia	**637**	**450**	**488**	**7,642**
Ceará	467	493	631	6,017
Maranhão	427	401	505	8,900
Paraíba	565	439	696	7,976
Pernambuco	524	449	553	5,752
Piauí	433	450	600	6,177
Rio Grande do Norte	465	659	918	14,451
Sergipe	559	529	760	6,697

Source: Ministry of Education/INEP, based on IBGE data.

The incidence of education varies among the rich and poor and varies for different education levels. As Figure 6.2 shows, the share of poor students in the student population varies greatly across the different levels of education. The line in the figure for grade 1-4 is downward sloping for successively higher income quintiles, indicating the progressive nature of benefit incidence in basic primary education. The first quintile receives 36 percent of the primary school services. However, the benefit incidence of secondary education is regressive, concentrated in the third quintile and above. In secondary schools, the first quintile receives only 11 percent of the service, and the benefit incidence is highly concentrated in the fourth and fifth quintile. Spending on higher education is extremely regressive, with the vast majority of students enrolled in public education coming from the wealthiest quintile. The 2001 PNAD data reveal that only less than 0.3 percent and 1.3 percent from the poorest quintiles and fourth quintile, respectively, were enrolled in tertiary education.

Figure 6.2: Incidence of Education by Level, Bahia (2001)



Source: Author's calculations based on PNAD 2001.

Bahia lags in preschool and early childhool development (ECD) programs. The group of children that has suffered the greatest lack of educational attention is the pre-school group. As the legal responsibility for the provision of pre-school has shifted to the municipal level, the number of preschool places in Bahia actually declined in recent years. Daycare and early childhood education represent a future investment in the human capital of the state, and should be a priority over the long term. Studies have shown that children who have attended pre-school perform better academically than those who have not. Programs have been in place to monitor and improve the health outcomes of small children—from early pregnancy through the first years of life. Given the high incidence of poverty and vulnerability among families with children under age 5 (see Section 5), and given the increased economic participation by women, a program of financial transfers linked to early childhood development and education centers (along the lines of *Bolsa Escola* and PETI, see below) could be influential in reducing poverty. The federal government has recently launched the *Bolsa Alimentação*, a program of financial tranfers to the mothers of children age 5 and younger, linked to stringent prenatal, postnatal, and developmental checkups by health professionals. This type of program could be linked to and used as the vehicle for strengthening and expanding early childhood education and care.

Policies to improve access of the poor to early childhood development programs, kindergartens, and secondary and higher education linked with improved quality of education should be the core of the government's poverty-reduction strategy. Furthermore, to reduce disparities in human capital targeting of social policy and public spending is called for to reduce spending on education.

BASIC INFRASTRUCTURE SERVICES

Basic infrastructure services contribute to higher welfare and productivity. Some services such as potable water and sanitation contribute directly to overall welfare and health status. Others such as electricity and telephones help households use their homes productively for income generation. The 2001 PNAD data reveal that access to basic services is highly correlated with a lower probability of being poor. Inequities in access to such services are abound in Bahia, both between the poor and non-poor and by geographic area. Key gaps in coverage include: the rural poor for energy and sanitation services and to a lesser extent, potable water. While the urban poor have much greater access to all types of services than their rural counterparts, a lack of sanitation services for an important share of poor urban dwellers raises public health concerns.

Access to public infrastructure services related to housing has increased rapidly over the last decade in Bahia. The amount of piped water supplied practically doubled (see Appendix C). The access to a sewerage system more than doubled during 1991-2000 (Table 6.8 and Appendix C). More households have collected waste and piped water. However, the supply of services in Bahia is still lacking compared to the national averages of 78 percent for piped water, 47 percent for sewerage system, and 79 percent for collected waste. Furthermore, the rural and urban service gap is still large although it is narrowing for some services such as access to piped water.[14]

Table 6.8: Sanitation Services in Bahia 1991 and 2000

	1991			2000		
	Total	**Urban**	**Rural**	**Total**	**Urban**	**Rural**
Piped Water	52.2	79.4	9.3	69.5	89.4	24.0
Sewerage System	16.6	26.7	0.6	34.5	49.0	1.3
Collected Waste	41.0	65.2	2.9	61.7	85.6	6.7

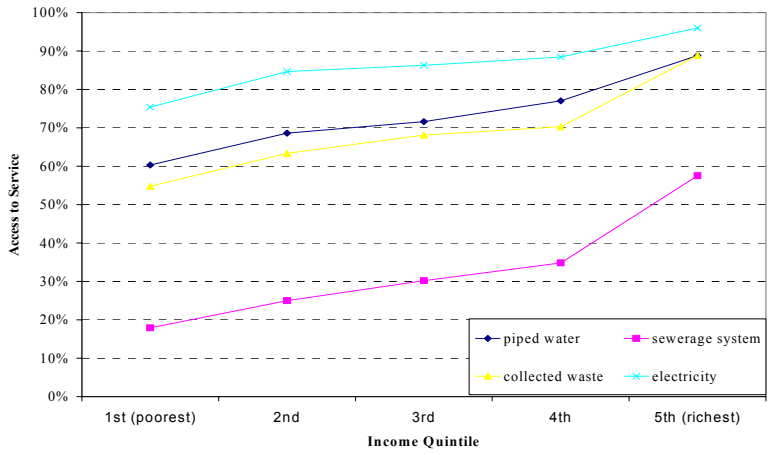
Source: Censuses 1991 and 2000.

The coverage of water, sewerage, electricity, and sanitation services increases strongly with income levels. In 2001, coverage with piped water ranges from 60 percent for the first quintile to 90 percent for the wealthiest quintile (Figure 6.3).

[14] *Pesquisa Nacional de Saneamento Basico* notes that the Census data is likely to overestimate the actual reach of sanitation services to households: first, the lack of adequate information of the Census respondents about the nature of the services available to his/her household and second, exclusion of around 9 million households (nationally) from the Census, which amounts to around 20 percent of the total, because they are either a) closed; b) empty; c) of occasional use; or d) did not answer the questionnaire.

Thus, in the first quintile, where only 60 percent of homes have access to safe water, 40 percent did not. The rapid expansion of piped water supply can at least partly be contributed to the so-called *Bahia Azul* program, a state program that aims at expanding access to clean water in Bahia.

Figure 6.3: Access to Infrastructure Services in Bahia (2001)



Source: Calculation based on PNAD 2001.

Public sewerage connection reach from 17 percent for the poorest quintile to 58 percent for the wealthiest quintile. However, the access to sewerage service by the poor increased by 6 percentage points during 1993-01. In the same period, more extremely poor obtained access to waste collection, reaching 57 percent in 2001 (37 percent in 1993) compared to slightly below 70 percent of the total sample. Still the access is regressive, slightly more than 54 percent of the poorest quintile have waste collected compared to around 90 percent of the richest quintile. Electricity has also expanded rapidly among poor households and 76 percent now has access compared to 86 percent of the total sample.

SOCIAL PROTECTION

Recognizing that economic growth and social investments in education (and health) will still leave many in extreme poverty, the state and federal governments have a variety of programs aimed at reducing economic insecurity and targeted poverty reduction. The programs fall into three categories: (i) those dealing with life-cycle considerations such as social security and pensions; (ii) those dealing with income volatility such as unemployment insurance; and (iii) those dealing with social protection, aimed at improving the well-being of specific vulnerable groups.

The social protection programs in Bahia include for example conditional cash-transfer schemes, employment and income generation programs, and programs to combat child labor and sexual abuse. In addition, there are health and education

programs aimed at building sewerage and keeping children in school. This section will describe some of the social protection issues and assess the policies of the government in dealing with them. In doing so, it will focus on two major social protection programs: the federal-funded *Bolsa Escola* and PETI (Child-Labor Eradication Program).

The basic approach to address children and youth could be linked to a life cycle and social risk management approach to human development. This means moving beyond survival goals to issues of basic education, health, social capital and a general flourishing condition for development. The well-being of children is more than a matter of current projects or interventions. Children are the basis for the future health and well being of their communities, and a key to breaking cycles of inter-generational poverty. Harmful child labor is an especially strong impediment to a future of good health and high productivity (see above).

It is not only children that confront challenges, but each age group faces challenge. Children are among the most vulnerable. The 0-to-5-age-group faces the risk of stunted development. In Bahia, public policy seeks to address this via early development programs. The education sector plays an important role by improving access to pre-school and kindergarten, particularly for the poor. However, given fiscal constraints, this group receives low coverage.

The 6-to-14 age group faces the risk of low-quality education, child labor, and sexual abuse. The social assistance programs in Bahia to assist this group are *Bolsa Escola* (to increase school access) and PETI (to eradicate child labor). This age group has good coverage, but demands are still not fully met (see the analysis below).

The 15-to-24 age group faces the risk of poor secondary education, including poor school attendance, completion, and quality. In addition, the labor market participants from this group face the same risks as those in the 25-to-65 age group (see below). The same policy responses apply as to the 6-to-14 age group. However, the poor from this age group are less well covered because there are no *Bolsa Escola* programs available for them. However, Bahia assists socially vulnerable youth via the *Agente Jovem* program.

The 25-to-65 age group faces risks of low income, underemployment, and unemployment. Job-creating growth programs and labor market reforms are key to reduce these risks. Current social policies—unemployment insurance, severance pay (FGTS), and the pension system—cover employees in formal employment for loss of income or job. Formal sector workers are well covered, perhaps excessively so. The group at risk is the two-thirds of the labor force working in the informal sector that does not have access to any social insurance programs, except for income loss in drought, which gives access to low-paid workfare programs, constituting a form of basic risk coverage. The *Programa Nacional de Geração de Emprego e Renda* (National Program for Job and Income Generation,

PRONAGER) helps the unemployed to increase their job opportunities, but it does not cover all municipalities in Bahia.

The group age 65 and older faces the risk of low income. The role of social protection is to supply pensions to this age group. The contributors to the social insurance system (contributory pensions) face little risk because they are insured. The role of social assistance is to provide income transfer to the group that is not insured. The risk for this age group is currently fairly adequately covered.

Many of the programs find it difficult to reach the very poorest. A recent study found that of the total spent on social programs, 14 percent accrued to the first quintile of the income distribution (World Bank 2001). Many programs lack broad reach amongst the poor, good targeting, or both. Some guidelines for the design of good social programs are provided in Box 6.1.

Spending on social protection by Bahia is slowly increasing. In addition to the federal and municipal programs, the state spent R$107.1 million in 2001 on social action programs, a nominal increase of 24 percent over 2000. The share of social action programs in total public expenditure was 1.3 percent in 2001. There is probably scope to expand social programs. However, this will require ensuring that existing programs are well targeted and effective. With this in mind, an assessment of three major social protection programs is carried out below.

Programa de Erradicação do Trabalho Infantil and Bolsa Escola. The federal-financed *Bolsa Escola* and *Programa de Erradicação do Trabalho Infantil* (Child-Labor Eradication Program, PETI) programs are designed to increase school attendance and attainment and to reduce child labor by providing financial transfers (grants) to families who abide by certain rules. The target group is children aged 7 to 14 from poor households. The programs are widely seen as successful, both in terms of improving educational outcomes and improving family welfare of the recipient families. In Bahia, 1.1 million children participated in the *Bolsa Escola* program in December 2002, around 13 percent of all beneficiaries of the program were children from Bahia. The goal was that 117,195 children participated in the PETI program in 2002 (no actual data are available).

One welcome side effect of these two programs stems from the way that they are administered. The programs specifically give the money to mothers of the participating students. The thinking is that this will increase the likelihood that the funds would go to the improvement of the welfare of the family as a whole and of the children in particular. This is the first time many of these women have been entrusted with this kind of financial responsibility, or have opened a bank account. This “official recognition” has also led to a greater recognition and valuation of women’s role in the family—including by their partners—and in many cases has increased the women’s self-confidence. In field visits by the World Bank, the money received by the mothers through the *Bolsa Escola* and PETI programs is repeatedly mentioned by both men and women as one way in which gender relations and the roles of men and women are slowly changing.

Box 6.1: Design of Social Programs

Better targeting requires different approaches for different programs. For universal programs, such as education, health, and urban services, the targeting of public spending can be improved without abandoning universality. True universalization of services from which the poor are mostly excluded is, in fact, synonymous with targeting the poor for service expansion.

Several principles are useful to follow. First, public spending should focus on spending items that disproportionately benefit the poor (such as schools, health facilities, and water supply in poor areas, or education initiatives targeted at reducing repetition rates in school). Second, some government services could require cost recovery for the non-poor. For insurance programs, such as pensions and unemployment insurance, contributions and benefits should be set such that public funds are used only for transfers targeted to the poor. Income transfers and related programs should be strictly tied to a means-testing procedure. In particular, public spending for income transfer programs should be focused on the very poorest. Third, often an effective way of targeting the poor is to provide goods which are not well-liked by the non-poor, such as a cheap but nutritious food.

There needs to be rigorous monitoring of the efficiency and effectiveness of social programs. Demand and willingness to pay serve as the basic guidelines to estimate program benefits. Investments and current transfers should be compared on the basis of cost–benefit and transfer effectiveness analyses. Redistributive objectives should not be used to justify bad investments. Social investments should pass an efficiency test demonstrating that they are more cost-effective than income transfer programs in bringing monetary or non-monetary benefits to the poor.

The design of social programs should correspond to the demand of the beneficiary population and include genuine beneficiary participation. In general, this implies that service provision should be at the level of willingness to pay. Cash and voucher programs are preferable to in-kind service provision, unless the latter is justified by better targeting or externalities. In some cases, a switch from in-kind to voucher financing can be an effective means to increase transparency, consumer choice, competition, and internal efficiency. Beneficiary participation in program design, implementation, monitoring, and evolution is essential.

An increasing share of social policy is implemented at the state and municipal level, especially in education, health, and social assistance. Thus, any social spending reform must include reforms at the state and municipal level. Social spending reform at the state and municipal level revolves around three objectives. First, reforms should improve incentives for providing service to the poor. This could include conditional cash transfers. Second, the responsibilities of the different levels of government should be clarified where they are unclear. Finally, reforms must attempt to strengthen the capacity of states and municipalities to deal with poverty-related issues.

Source: World Bank (2001).

Two issues arise in the implementation of the poverty alleviation strategy are targeting and institutional arrangements. Targeting seeks to distribute transfers or other benefits only to those identified as the beneficiary group in the interest of efficiency. The administrative mechanism must not cost so much to operate that it effectively absorbs the savings from excluding the non-needy. In Bahia, geography is one of the indicators with the greatest value as a targeting mechanism. Another good targeting mechanism is individual or family characteristics. Some characteristics are closely associated with poverty and suggest the types of assistance, which would mainly benefit the poor. Nearly all households, which draw their water from wells, are poor. Other housing characteristics closely associated with poverty include the use of latrines and the absence of household lighting or sanitation facilities.

The magnitude and seriousness of the poverty in Bahia call for the active participation of all resources, including non-governmental organizations (NGOs). NGOs have several strengths. They can mobilize and utilize substantial levels of resources, and they are also able to reach underserved populations effectively. NGOs are a strong constituency for the promotion of poverty alleviation goals and programs. There are many NGOs in Bahia covering different fields and areas of the state.

NGOs also have some weaknesses. They are often vulnerable and have difficulty formulating policy proposals. Collaboration with the government is constrained by real and perceived barriers. The dispersion of government responsibilities over a broad range of state agencies makes NGO entry difficult. Also, NGOs differ as to their management and administrative capacities. Some government agencies view NGOs as competitors instead of potential executing agencies. Mistrust hinders collaboration. The government should establish clear and efficient mechanisms for NGO collaboration. Emerging NGO consortia provide one mechanism, which should be explored for fostering greater coordination, dialogue, and joint planning with the government.

7. Poverty Correlates

The previous sections examine the disparities in key assets between the poor and non-poor. This section takes the analysis a step further and analyzes the relative importance of these and other correlates of poverty in a multivariate setting, and investigates the marginal impact of each individual attribute on the likelihood of a household falling below the indigence poverty line, taking into account other characteristics. The section analyses the impact of experience, labor market association, different levels of education, etc. on the likelihood of being poor for Bahia and Brazil as a whole. The status of the household—poor or non-poor—is regressed on relevant individual and household characteristics using the probit

regression technique. Standard errors are adjusted for the clustering process inherent in the sampling procedure of the PNAD surveys (Ferreira, Lanjouw, and Neri 1998). To minimize the likelihood of findings being affected by small sample biases, data for Brazil as a whole is used in the analysis. Given the way the regression model is specified, findings reveal when impacts for Bahia are different from impacts for Brazil as a whole.

The analysis of poverty correlates reveals a conditional correlation between poverty and characteristics of household heads and indicates groups that are particularly vulnerable. The probability of a household being poor is analyzed based on relevant individual and household characteristics. The main conclusion emerging from the analysis is that disparities in assets – education and labor – are indeed strongly correlated with poverty.

Other poverty studies for Brazil as a whole, such as Ferreira, Lanjouw, and Neri (1998), show that in 1996 education was the central personal attribute determining the likelihood that a household would experience poverty. Other factors such as age, family size, race, and rural living are also important in determining the likelihood of poverty. The findings on Brazil presented in this section are very much in line with those of Ferreira, Lanjouw, and Neri. A discussion of some of the variables explaining income poverty follows below.

Another study, Ferreira and Leite (2001), finds that broad based policies aimed at increasing educational attainment have substantial impacts on poverty reduction, but muted effects on inequality in Ceará.[15] Unfortunately, the authors did not undertake the analysis for other states in Brazil including Bahia. However, the findings would most likely be similar in Bahia to the findings for Ceará.

It is important to note the limitations of this analysis at the outset. First and foremost, the analysis does not capture the dynamic impact of certain causes of poverty over time. Most notably, the impact of changes in economic growth - most certainly a key determinant of poverty – cannot be assessed using this static, cross-section model. Second, the analysis is limited by the variables available at the household level from the 2001 PNAD. Other factors – such as social conditions like crime and violence, or physical conditions such as variations in climate or access to markets – could not be included due to a lack of data at this level. Finally, though theory holds that many of the variables included in the analysis do indeed contribute to (cause) poverty (or poverty reduction), the statistical relationships should be interpreted as correlates and not as determinants since causality can run both ways for some variables.

[15] These findings are based on micro simulations.

Table 7.1: Probability of Falling into Poverty, 2001			
Probit Regression	Number of obs. =		44.094
Dependent Variable: P0	**dy/dx**	**T**	**P>|t|**
Age	-0,005	-4,42	0,000
age_2	0,000	2,96	0,003
female*	0,054	10,44	0,000
black and mulatto*	0,063	18,52	0,000
rural*	0,038	5,43	0,000
family size	0,029	6,35	0,000
family size_2	-0,005	-11,61	0,000
family members under the age of 5	0,119	28,16	0,000
family members between age 5 and 15	0,101	24,85	0,000
family members between age 15 and 24	0,036	11,38	0,000
family members over the age of 65	-0,081	-6,86	0,000
Primary education (1-4 grade)*	-0,046	-10,09	0,000
lower secondary education (5-8 grade)*	-0,086	-19,55	0,000
upper secondary education(9-12 grade)*	-0,110	-24,71	0,000
Tertiary education (>12 grade)*	-0,115	-15,63	0,000
signed work card*	-0,123	-31,81	0,000
employed in agriculture*	0,103	7,81	0,000
employed in services*	0,005	0,47	0,637
Employed in industry*	0,009	0,89	0,374
Employed in the social sector*	0,009	0,73	0,466
Employed in “other” sector*	-0,036	-2,18	0,03
Bahia*	-0,001	-0,02	0,987
Bahia age	0,000	-0,01	0,991
Bahia age_2	0,000	-0,06	0,955
Bahia female *	0,028	1,84	0,065
Bahia black and mulatto*	-0,037	-3,36	0,001
Bahia rural*	-0,025	-1,82	0,069
Bahia family size	0,044	4,08	0,000
Bahia family size_2	-0,004	-2,75	0,006
Bahia family members under the age of 5	0,012	0,91	0,36
Bahia family members between age 5-15	-0,001	-0,06	0,955
Bahia family members between age 15-24	0,004	0,40	0,692
Bahia family members over the age of 65	-0,019	-0,74	0,459
Bahia primary education*	0,024	1,79	0,073
Bahia lower secondary education*	0,042	2,05	0,04
Bahia upper secondary education*	-0,020	-1,20	0,229
Bahia tertiary education*	-0,064	-1,85	0,065
Bahia signed work card*	0,024	2,13	0,033
Bahia employed in agriculture*	-0,003	-0,11	0,91
Bahia employed in services*	-0,011	-0,50	0,619
Bahia employed in industry*	-0,028	-1,32	0,188
Bahia employed in the social sector*	-0,029	-1,06	0,291
Bahia employed in the “other” sector*	-0,030	-0,59	0,553

(*) dF/dx is for discrete change of dummy variable from 0 to 1;
t and P>|t| are the test of the underlying coefficient being equal to 0.
Source: Author’s calculations based on PNAD 2001.

Bahia is in many ways very different from Brazil as a whole (Table 7.1). The largest statistical differences in poverty reduction between Bahia and the nation are found in the effect of education, sector of employment, location, gender, race, and family size.

Living in Bahia does not by itself affect the probability of being poor. Hence, individual and household characteristics are more important than geographical location. This is good news for policy-makers as there are no non-measurable Bahia variables kicking-in and affecting the likelihood of a household head in Bahia falling below the poverty line. One explanation may be that the data are adjusted by regional prices, which affect the state of Bahia dummy variable (Ferreira, Lanjouw, and Neri 1998).

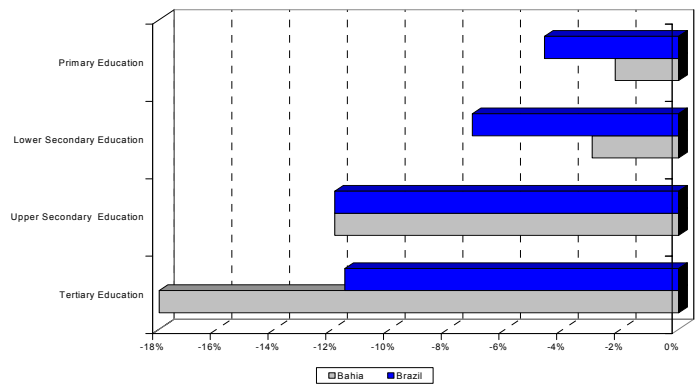
Gender of head of households affects poverty more in Bahia than in Brazil as a whole. Households headed by women are more likely to be poor than those headed by men. Female-headed households have a much larger likelihood of being poor than do male-headed households when other covariates are included in the analysis, such as labor market connection and education (Table 7.1). Moreover, female-headed households in Bahia are 60 percent more likely to be poor than female heads in the rest of Brazil. Hence, social policies favoring women, such as conditional-cash-transfer programs for example *Bolsa Escola* and *Bolsa Alimentação* where the mother receives the benefit should be strengthened (see Section 6). Furthermore, introducing more kindergarten and childcare facilities for poor mothers could facilitate poor women's labor market participation.

The effects of race of head of household are less strong in Bahia than in Brazil as a whole. The ethnic background (white, black and mulatto) is another important factor contributing to poverty. The probit regression findings show that mulattos and black *Bahianos* have a higher incidence of poverty than their white peers, controlling for other characteristics. However, it is interesting to note that the effect of black and mulatto headed households on poverty is much lower in Bahia than in Brazil as a whole. One explanation could be that this group accounts for a much larger share of the population in Bahia than in the nation as a whole. Family and education variables capture parts of the difference found in the simple unconditional mean incomes, but still a large part, is due to discrimination or other unexplained individual characteristics of the non-white population group. Policies to assist access to high quality education and health care for poor families that take into account the reality of blacks and mulattos is a key to change this picture in the future.

Education is the strongest poverty reduction correlate. All levels of education from primary to tertiary are strongly statistically significant and negatively associated with the probability of being poor in Bahia (Table 7.1 and Figure 7.1). The more education attained, the less likely it is that the household head falls below the

poverty line of R$81 in 2001. The impact of having completed grades 1-4 of primary education on the likelihood of being poor is the lowest. For high-school graduates, the estimated impact is much larger (4 times) than that of grade 1-4 of primary education. Furthermore, completed tertiary education reduces poverty more than completed secondary education. For university graduates, the likelihood of falling below the poverty line is 8 times lower than that of completed grade 1-4 of primary education. Moreover, it is interesting to note that the likelihood of falling below the poverty line is much lower for university graduates in Bahia than in Brazil as a whole, indicating that highly educated individuals is a scarce resource in Bahia and they therefore receive a wage premium. This is not the case for household heads that only partly or fully completed primary school. On the contrary, this group of individuals has a higher probability of being poor than in the rest of Brazil, indicating that the quality of primary education may not be as high in Bahia as elsewhere.

Figure 7.1: Marginal Effects of Attained Education on Poverty, Bahia and Brazil (2001)



Source: Authors estimations based on PNAD 2001.

Labor market connection is important for the probability of falling into poverty. Households where the household head works in the formal sector were less likely to be poor in 2001. In Bahia, however, the effect on poverty of formal sector employment is less strong than in Brazil as a whole. This finding is in line with the fact that formal sector employment is lower in Bahia than in the nation. Turning to the sector of employment—agriculture, services, industry, social and other— is a significant correlate of poverty and Bahia is similar to the rest of the country. A household, whose head is employed in the public sector, is richer than one whose head is employed in the private sector. Additionally, household heads working in agriculture are 10 times more likely to be poor than household heads working in services and industry.

Age of head of household and its members. The older the head of the household, the lower the probability the household will be poor, albeit at a decreasing rate (Table 7.1). Households with young children are the most poverty prone; households with old people are the least. In Bahia and Brazil, families with children younger than 5

appear more likely to be poor than families with no such children. One direct policy intervention would be to facilitate access to childcare. The poor find the shortage of affordable childcare a large obstacle to their daily chores. The gender finding paired with this small children finding indicates that single mothers with small children are far more likely to experience poverty than, for example, male-headed households with no children.

The likelihood of extreme poverty for households with youth members (aged 15 to 24) is much lower than for those with children younger than five, but it is still high. Additionally, this finding pared with the above-mentioned finding that young household heads are much more likely to experience poverty indicates that the youth is at considerable risk of poverty in Bahia. The lower likelihood of extreme poverty for households with a member older than 65 may be due to the fact that many of the elderly receive a pension, which would increase household income.

Size of household. Family characteristics, such as household size, are positively correlated with the incidence of poverty. Hence, the larger the household, the more poverty prone it is. Moreover, larger households are poorer and the effect is concave, indicating that a scaling factor matters for poverty. Finally, the finding for Bahia is not different to the rest of Brazil, as large families in Bahia are not more likely to experience poverty than large households in Brazil as a whole.

Rural living is a significant correlate to poverty. This is in line with what we observed earlier in the descriptive statistics. Hence, the deep rural poverty in Bahia and Brazil is not only due to lower education achievements and skill levels. The households located in rural Bahia are less likely to experience poverty than in the rest of Brazil, which may indicate that rural dwellers in Bahia have developed coping strategies such as migration to urban area during drought periods. Policy interventions that facilitate poor rural people's access to basic services and expanding high quality rural education are central to poverty reduction in Bahia.

Although these findings help improve our understanding of the determinants of poverty, they do not all lead to policy recommendations. Some findings such as those on race and gender are difficult to address, especially at the state level.[16] However, many of these findings can assist in the formulation of poverty reduction recommendations and strategy in Bahia. The location and education findings should be reflected in the infrastructure and education policies respectively, while health policies relating to improving family planning and infant mortality should result in lower household sizes with fewer young children. Also, some of the social protection policies should be targeted at the vulnerable as identified in this section.

[16] Moreover, the findings on race could be slightly biased—the non-poor in Brazil have a tendency to classify themselves as white.

8. Poverty-Reduction Strategy for Bahia

Over the medium to long run what is needed to alleviate the high levels of poverty is broad-based growth. However, this is not enough to alleviate poverty, particularly in the short run. Measures are needed to protect vulnerable groups and to ensure that the poor are able to take advantage of the greater opportunities in the economy. In order to address these latter needs, this paper has examined the profile of the poor in Bahia and recommended priority policies and programs targeted to them.

The government of Bahia has taken important steps to reduce poverty, for example the recent generation of SECOMP (the Secretariat of Poverty Reduction) and the conduction of poverty related research by SEI are encouraging signs. However, it needs a poverty alleviation strategy that sets clear and appropriate priorities and goals for poverty reduction efforts within a framework of a continuation of economic policies that would promote growth. The challenge and test of the government's resolve will be to what extent current and future policies and programs are governed by that strategy. In order to ensure that the poor reap the benefits, poverty measurement and monitoring are called for, including tracking changes and making appropriate adjustments in existing programs to reflect these changes.

A SIX-PRONGED POVERTY-REDUCTION APPROACH FOR BAHIA

The poverty profile, determinants of poverty, and social risk and incidence analysis provide guidance on a social agenda and poverty alleviation strategy for Bahia.[17] The strategic principles for reducing poverty involve seeking to strengthen the key assets of the poor, taking into account geographic differences in the poverty situation and priorities. The government of Bahia could apply a six-pronged poverty-reduction approach:[18]

[17] It is worth to keep in mind that this paper is a fast assessment of poverty in Bahia and does by no means capture all areas of poverty in the state. Further research include: public expenditure analysis (incidence and management), the links between poverty, rural and urban living, health, and the environment, impact evaluations of social assistance programs, participatory research on the obstacles to increased school enrollment among black and mulatto children, and participatory research on poverty, crime and violence.

[18] Some key steps for immediate action could include: (1) conducting a thorough review of public expenditure allocations and developing proposals for reallocating expenditures such that they better reach the poor; (2) developing a set of indicators to monitor implementation of poverty reduction interventions (including key budget categories) and agreeing on an inter-institutional process for reporting on such indicators and implementation; and (3) applying a poverty map as a tool for targeting and resource allocation.

First, **targeted programs should focus on the extreme poor and prioritize among groups.** Given the distribution of poverty, first priority should be given to: female-headed households with young children, blacks and mulattos, people with or at risk for low education attainment, and the rural poor. Second priority should be assigned to programs that target the poor informal-sector workers and the poor unemployed. Improvements in social policies and access to public services are needed to reduce extreme poverty for these groups.

- The **gender** finding paired with the young children finding indicates that single mothers with small children are far more likely to experience poverty than, for example, male-headed households with no children. Social policies favoring women should be expanded, for example: (1) conditional-cash-transfer programs where the mother receives the benefit, and (2) more kindergarten and childcare facilities for poor mothers could facilitate poor women's labor market participation.

- **Blacks and mulattos** are poorer than whites taking into account individual attributes and other characteristics. It would be more sensible to target social policies toward the poor rather than to consider affirmative action programs. Yet there is room for special actions to increase school attendance and improve the health of blacks and mulattos. In education one option would be to introduce schoolbooks and materials that better reflect the reality of blacks and mulattos. In health, one option would be to give more attention to specific illnesses of black people, including training health staff in attending the special needs of the black population. Additionally, efforts to increase racial integration are called for.

- Extremely poor households are at great risk for poor or low **human capital** accumulation that includes poor **health** and undesired pregnancies because they lack access to family planning and clean water and sanitation facilities. They are also at risk for low-quality **education** and education attainment. Increased quality education and educational attainment can reduce the likelihood of becoming poor, as more education is a key factor in obtaining a higher income. Furthermore, education is associated with fertility: the more education a woman attains, the lower her fertility rate and, therefore, the lower the dependency ratio and the lower the likelihood of falling into poverty. It is clear that the *Bahianos* need to be brought up the educational ladder to escape poverty. One approach would be to increase: (1) access to early childhood development and daycare programs, (2) access of poor people to programs of financial transfers linked to early childhood development and secondary and higher education, and (3) the quality of education.

- The differing characteristics of poor **rural** households call for multiple paths out of poverty aimed at: (i) small farm sector intensification, (ii)

improved employment opportunities in dynamic commercial agriculture, (iii) growth of the rural non-farm sector, (iv) migration of the young, and (v) provision of safety nets for those "trapped" in poverty. The recommended measures include improving human capital endowments, reforming the land, labor and financial markets, enhancing research and extension, improving the supply of public goods and services, pricing and trade policies, and transfer programs.

- Other households are poor because they are either in low-paying, low-productivity **jobs in the informal sector** or **unemployed**. They need more productive jobs to raise their income above the poverty level and become well equipped to take advantage of employment opportunities. It should be recognized that since very few people work in the formal labor market, social policies tied to formal employment or unemployment will have only very limited reach among the poor. Social protection policies need to allow informal workers to avail of them, while simultaneous efforts need to be made to encourage formal sector growth and that may include liberalization of the labor market. Hence, the state government should support federal government initiatives to reform the labor code in order to reduce costs of employment creation in the formal sector. Possible measures would entail: (1) realigning incentives for hiring, retaining, and firing workers, and (2) relaxing rules, including mandated minimum non-wage benefits, to leave more to decentralized collective bargaining, and (3) targeted social protection measures that relate to informal sector and youth employment.

Second, **reallocate public expenditures and promote community participation in service delivery.** The top priority for effective action to reduce poverty should involve reallocating public expenditures. The government needs to reallocate existing spending toward areas that benefit the poor, boost cost recovery for services used by the non-poor, and improve efficiency in service delivery. A thorough review of public spending should be conducted to provide guidance on such reallocations. Clear candidates for reallocation of ***education*** spending include: (i) enforcing higher cost recovery for higher education and shifting freed resources toward basic education, kindergarten, and early childhood development; (ii) focusing spending on demand-side education schemes to reduce economic barriers faced by poor households to increase enrollment by the poor in secondary and tertiary education. Spending on ***social insurance and assistance*** should also be streamlined to ensure a comprehensive, efficient, well-targeted safety net. An inventory of service coverage should be overlayed with a poverty map to guide spending allocations on ***basic services*** so as to target key gaps among the poor. Promotion of ***community participation*** in service delivery is important to expand social programs and respond to community preferences for service delivery.

Third, **implement key policy reforms to reduce disparities in assets.** Special efforts should be made to ensure that key reforms to reduce disparities in assets, and hence poverty, are undertaken including: (i) supporting the federal government

attempt to reform of the labor code; (ii) expanding house and land property titling; and (3) ensuring access to high-quality secondary and higher education for students from poor households.

Fourth, **improve targeting mechanisms.** The government should apply a poverty map to the allocation of expenditures. It should also seek to develop additional mechanisms for targeting, including means-testing and self-targeting.

Fifth, **allocate resources to monitor poverty and evaluate the implementation of poverty reduction interventions.** The government needs to develop a poverty monitoring system to track living conditions and provide data for impact evaluation of interventions. The government should also seek to develop a key set of indicators for monitoring actions to reduce poverty.

Sixth, **increase sectoral integration.** For the poverty-reduction strategy to be effective, a high level of sectoral integration is needed at all levels of government. It is of utmost importance that the Secretariats of Planning and Poverty Reduction work extremely closely together so that all changes in poverty indicators, etc. are reflected in the social programs in Bahia.

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APPENDIX A

Poverty Indices Based on PNAD 1981-2001

P0	1981	1985	1988	1990	1993	1995	1997	1998	1999	2001
Brazil	24,4	26,0	25,1	30,3	29,7	21,8	21,9	21,6	22,4	21,9
NE	49,8	51,9	51,9	58,7	56,7	44,6	46,1	43,5	44,3	42,3
São Paulo	6,6	8,3	6,5	8,8	12,5	7,1	7,4	7,8	8,6	9,4
Maranhão	64,0	62,8	56,1	64,5	65,4	54,4	58,2	54,1	52,0	48,4
Piauí	69,3	69,8	68,1	71,5	62,1	51,6	57,6	50,2	51,8	45,1
Ceará	59,1	58,6	58,0	65,8	57,5	47,2	47,6	45,2	46,7	42,4
Rio Grande do Norte	49,4	55,7	47,7	57,0	54,5	40,4	39,8	38,3	39,7	36,2
Paraíba	58,3	57,0	57,4	60,7	56,9	40,8	42,9	40,5	39,4	42,9
Pernambuco	40,8	44,5	45,4	51,8	53,9	39,5	42,5	39,7	41,6	40,6
Alagoas	42,8	45,7	49,5	59,7	58,5	46,2	45,9	44,1	47,2	48,0
Sergipe	46,2	46,3	48,9	50,3	47,5	41,5	40,7	38,0	41,4	38,1
Bahia	40,7	44,7	47,7	54,9	54,6	43,0	43,5	41,5	42,2	41,0

P1	1981	1985	1988	1990	1993	1995	1997	1998	1999	2001
Brazil	9,7	10,5	10,5	13,0	14,5	10,6	11,0	10,6	10,8	11,1
NE	22,0	23,8	24,1	28,5	30,0	21,4	22,4	20,7	21,2	21,6
São Paulo	2,0	2,6	2,1	2,7	5,8	4,4	4,8	4,6	4,8	5,6
Maranhão	31,1	29,7	26,4	34,2	37,5	28,9	31,5	27,2	24,2	24,5
Piauí	37,1	40,7	40,0	42,2	35,4	27,4	29,8	26,4	26,4	24,8
Ceará	27,9	27,9	28,1	33,1	30,2	23,0	23,1	21,9	22,7	21,9
Rio Grande do Norte	21,7	26,5	21,7	28,1	27,5	17,9	19,2	16,9	19,0	17,9
Paraíba	27,1	27,3	28,2	30,6	30,9	19,0	21,1	18,2	19,4	21,1
Pernambuco	16,1	19,2	19,9	23,0	28,0	17,4	20,0	18,5	20,0	20,9
Alagoas	16,8	17,8	20,9	25,4	31,0	20,9	21,7	20,6	21,8	24,1
Sergipe	18,3	18,8	20,9	20,8	23,6	19,8	20,5	18,0	20,0	19,0
Bahia	16,2	18,7	20,5	25,7	27,9	20,4	19,9	19,5	19,8	20,9

P2	1981	1985	1988	1990	1993	1995	1997	1998	1999	2001
Brazil	5,2	5,7	6,0	7,4	9,8	7,2	7,7	7,3	7,5	7,9
NE	12,5	13,8	14,5	17,3	20,6	14,0	14,9	13,5	13,8	14,6
São Paulo	0,9	1,3	1,0	1,3	4,1	3,7	4,1	3,9	4,0	4,6
Maranhão	19,0	17,6	15,9	22,1	26,8	19,7	21,8	17,9	14,9	16,1
Piauí	24,2	28,3	28,3	29,7	25,6	19,1	20,5	17,7	17,7	17,5
Ceará	16,4	16,4	17,1	20,5	21,0	15,2	15,4	14,3	15,2	14,8
Rio Grande do Norte	11,9	15,7	12,7	16,9	18,2	11,2	13,2	10,6	12,6	11,9
Paraíba	15,7	16,2	17,5	19,2	21,6	12,3	14,1	11,4	12,7	13,8
Pernambuco	8,4	10,8	11,5	13,1	19,3	11,0	13,3	12,3	13,4	14,5
Alagoas	8,8	9,0	11,9	13,8	20,9	13,1	14,9	13,3	13,5	16,1
Sergipe	9,5	10,0	11,6	11,1	15,3	13,1	14,1	12,1	13,5	13,0
Bahia	8,4	10,1	11,6	15,0	18,7	13,2	12,7	12,7	12,8	14,0

APPENDIX B

Education and Culture Spending (nominal R$ million)

	1995	1996	1997	1998	1999	2000	2001
Brazil	**14,371.2**	**17,172.4**	**15,981.6**	**22,872.9**	**24,758.3**	**27,962.2**	**32,576.8**
North	**1,101.2**	**1,278.1**	**1,338.1**	**1,657.5**	**1,564.1**	**1,916.2**	**2,287.7**
Rondônia	109.9	123.1	150.7	164.6	181.5	226.3	253.0
Acre	82.6	97.7	112.0	169.3	129.8	183.4	201.7
Amazonas	231.9	300.5	308.1	320.6	316.9	454.3	529.3
Roraima	59.8	68.7	85.1	105.5	97.5	130.5	158.2
Pará	343.1	425.6	433.2	603.0	525.6	533.1	663.0
Amapá	165.2	122.7	103.7	127.2	129.4	153.8	185.6
Tocantins	108.7	139.7	145.2	167.2	183.4	235.0	296.9
Northeast	**2,373.0**	**2,684.1**	**3,196.0**	**4,103.8**	**4,403.8**	**4,518.1**	**6,176.6**
Maranhão	255.5	323.2	287.1	293.2	350.2	301.2	695.4
Piauí	152.1	192.8	171.2	190.3	276.9	264.2	350.2
Ceará	342.1	292.6	440.0	597.2	609.1	763.6	1,123.3
Rio Grande do Norte	162.5	190.1	224.5	390.9	407.5	471.6	575.2
Paraíba	180.4	237.4	259.3	379.2	418.5	459.3	604.6
Pernambuco	316.0	335.7	448.8	559.3	526.0	413.8	527.8
Alagoas	136.3	154.9	118.7	179.5	227.6	261.0	320.4
Sergipe	143.7	162.3	159.9	208.7	218.6	264.6	353.0
Bahia	684.3	795.2	1,086.5	1,305.4	1,369.4	1,318.9	1,626.8
Southeast	**7,622.6**	**8,809.6**	**7,128.3**	**11,872.2**	**12,844.8**	**14,994.0**	**17,474.2**
Minas Gerais	1,703.1	1,860.2	1,976.2	3,104.3	2,797.8	3,324.3	3,528.5
Espírito Santo	216.2	240.6	249.3	460.9	439.0	301.7	353.1
Rio de Janeiro	1,429.8	1,559.9	1,268.4	2,245.8	3,184.4	3,722.7	3,114.3
São Paulo	4,273.5	5,148.9	3,634.4	6,061.1	6,423.5	7,645.3	10,478.2
South	**1,896.3**	**2,871.1**	**2,659.0**	**3,436.3**	**3,299.4**	**4,169.8**	**3,995.3**
Paraná	868.2	1,104.5	1,239.9	1,840.5	1,712.2	1,357.1	1,492.5
Santa Catarina	395.7	495.6	497.1	479.9	458.2	803.8	923.7
Rio Grande do Sul	632.3	1,270.9	922.0	1,115.9	1,128.9	2,008.9	1,579.0
Center-West	**1,378.1**	**1,529.4**	**1,660.2**	**1,803.1**	**2,646.3**	**2,364.1**	**2,643.1**
Mato Grosso do Sul	180.7	230.2	167.7	290.4	339.5	468.4	479.0
Mato Grosso	285.3	231.2	297.5	274.2	385.8	332.9	335.0
Goiás	294.6	385.2	392.8	492.4	484.2	596.3	808.3
Distrito Federal	617.5	682.8	802.2	746.1	1,436.8	966.5	1,020.8

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Education and Culture Spending (%GDP)

		1995	1996	1997	1998	1999	2000	2001
Brazil	**TOTAL**	**2.2**	**2.2**	**1.8**	**2.5**	**2.5**	**2.5**	**na**
North	**N**	**3.7**	**3.5**	**3.5**	**4.0**	**3.6**	**3.8**	**na**
Rondônia	RO	3.7	3.4	3.6	3.6	3.6	4.0	na
Acre	AC	8.3	8.5	8.5	11.6	8.3	10.8	na
Amazonas	AM	2.1	2.1	2.1	2.1	2.0	2.4	na
Roraima	RR	12.7	12.6	13.7	14.1	11.9	11.7	na
Pará	PA	2.8	3.1	2.9	3.9	3.2	2.8	na
Amapá	AP	13.4	9.2	6.8	8.5	8.2	7.8	na
Tocantins	TO	8.9	9.1	8.4	8.6	8.7	9.6	na
Northeast	**NE**	**2.9**	**2.6**	**2.8**	**3.4**	**3.4**	**3.1**	**na**
Maranhão	MA	5.0	4.7	3.9	4.1	4.4	3.3	na
Piauí	PI	4.8	4.9	4.1	4.3	5.8	5.0	na
Ceará	CE	2.7	1.9	2.5	3.2	3.1	3.7	na
Rio Grande do Norte	RN	3.4	3.2	3.4	5.7	5.3	5.1	na
Paraíba	PB	3.4	3.6	3.7	5.2	5.3	5.0	na
Pernambuco	PE	1.8	1.6	1.9	2.3	2.0	1.4	na
Alagoas	AL	3.4	3.1	2.1	2.9	3.5	3.7	na
Sergipe	SE	4.1	3.8	3.3	4.1	4.0	4.5	na
Bahia	BA	2.6	2.4	2.9	3.4	3.3	2.7	na
Southeast	**SE**	**2.0**	**1.9**	**1.4**	**2.2**	**2.3**	**2.4**	**na**
Minas Gerais	MG	2.7	2.4	2.3	3.5	3.0	3.1	na
Espírito Santo	ES	1.7	1.6	1.5	2.7	2.3	1.4	na
Rio de Janeiro	RJ	1.9	1.8	1.3	2.2	2.8	2.7	na
São Paulo	SP	1.9	1.9	1.2	1.9	1.9	2.1	na
South	**S**	**1.6**	**2.0**	**1.7**	**2.2**	**1.9**	**2.2**	**na**
Paraná	PR	2.3	2.3	2.3	3.2	2.8	2.1	na
Santa Catarina	SC	1.7	1.7	1.6	1.5	1.3	1.9	na
Rio Grande do Sul	RS	1.2	2.0	1.3	1.6	1.5	2.4	na
Center-West	**CO**	**3.6**	**3.2**	**3.1**	**2.9**	**4.2**	**3.1**	**na**
Mato Grosso do Sul	MS	2.6	2.8	1.8	2.9	3.1	3.9	na
Mato Grosso	MT	4.4	2.9	3.2	2.8	3.3	2.5	na
Goiás	GO	2.5	2.6	2.5	2.8	2.7	2.8	na
Distrito Federal	DF	4.7	4.1	4.0	3.0	6.5	3.3	na

http://www.stn.fazenda.gov.br/estados_municipios/index.asp and IBGE (Contas Regionais)

Education and Culture Spending (%Total Spending)

	1995	1996	1997	1998	1999	2000	2001
Brazil	**16.8**	**16.8**	**10.0**	**16.0**	**17.8**	**18.5**	**19.0**
North	**19.1**	**19.1**	**19.9**	**19.3**	**19.6**	**20.3**	**19.7**
Rondônia	16.7	18.6	21.5	11.2	20.6	19.7	19.5
Acre	17.1	21.4	22.0	26.6	19.2	23.3	21.6
Amazonas	13.3	15.0	17.1	16.7	15.7	20.0	16.4
Roraima	20.9	21.3	21.5	24.6	22.3	21.0	22.7
Pará	22.8	22.6	20.9	21.6	20.2	18.7	19.6
Amapá	28.4	25.6	23.9	27.2	25.5	26.1	24.0
Tocantins	20.9	15.9	18.5	19.4	21.0	20.3	22.5
Northeast	**17.9**	**16.2**	**16.8**	**15.7**	**17.9**	**17.9**	**19.0**
Maranhão	24.6	22.8	23.2	21.1	16.5	13.9	23.5
Piauí	18.0	20.3	16.1	17.2	23.5	21.4	22.3
Ceará	17.5	12.4	16.1	17.3	12.5	19.4	21.4
Rio Grande do Norte	19.5	17.9	16.0	20.0	23.5	24.1	25.1
Paraíba	19.5	21.6	21.2	23.6	24.3	23.9	23.7
Pernambuco	14.6	12.2	15.9	11.0	14.9	8.8	8.4
Alagoas	19.9	12.4	14.4	17.8	17.6	17.4	22.1
Sergipe	16.9	15.6	11.7	13.1	15.9	18.0	20.6
Bahia	17.1	17.1	17.2	14.4	20.2	20.7	19.2
Southeast	**16.4**	**16.7**	**6.9**	**16.6**	**18.5**	**19.3**	**20.4**
Minas Gerais	18.0	19.7	16.4	19.9	28.5	22.9	20.7
Espírito Santo	10.3	9.9	9.3	14.4	14.6	8.8	9.8
Rio de Janeiro	18.1	15.0	10.4	16.3	19.9	22.5	17.5
São Paulo	15.8	16.8	4.7	15.6	15.9	17.7	22.2
South	**15.0**	**16.9**	**13.7**	**13.9**	**13.8**	**16.3**	**15.8**
Paraná	25.1	24.3	22.0	22.1	15.3	13.9	16.6
Santa Catarina	15.1	12.4	12.0	13.6	12.1	14.4	18.6
Rio Grande do Sul	9.6	15.1	9.6	8.7	12.7	19.7	13.9
Center-West	**18.7**	**16.7**	**16.4**	**15.4**	**19.7**	**17.6**	**16.5**
Mato Grosso do Sul	17.5	16.3	11.2	16.2	21.1	23.0	20.2
Mato Grosso	18.8	13.7	16.5	12.1	18.7	13.7	12.7
Goiás	16.3	16.2	14.6	14.6	14.5	18.7	16.3
Distrito Federal	20.4	18.6	19.4	17.3	22.4	16.7	16.9

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APPENDIX C

Volume of Piped Water Distributed and % Not Treated

	Distributed (m3/day)		Not Treated/Distributed (%)		Changes (%) 1989/2000	
	1989	2000	1989	2000	Distributed	Not Treated
Brazil	27,863,940	43,999,678	3.9	7.2	57.9	3.3
Northeast	4,837,261	7,892,876	6.0	6.4	63.2	0.5
Bahia	1,196,627	2,184,876	3.0	4.6	82.6	1.6
Maranhao	431,634	909,660	19.5	27.6	110.7	8.1
Piaui	212,027	391,143	25.4	8.0	84.5	-17.4
Ceara	615,811	951,813	4.6	7.9	54.6	3.3
Rio Grande do Norte	411,434	659,589	10.3	2.6	60.3	-7.8
Paraiba	406,701	577,532	1.8	2.4	42.0	0.6
Pernambuco	1,119,503	1,554,881	2.0	0.6	38.9	-1.4
Alagoas	237,270	345,215	1.4	2.7	45.5	1.3
Sergipe	206,254	318,167	5.8	0.0	54.3	-5.8

Source : Pesquisa Nacional de Saneamento Basico 1989 and 2000.

Volume of Collected Sewerage and % Not Treated

	Collected (m3/day)		Not Treated/Collected (%)		Changes (%) 1989/2000	
	1989	2000	1989	2000	Collected	Not Treated
Brazil	10,667,823	14,570,079	80.1	64.7	36.6	-15.3
Northeast	1,076,722	1,595,398	83.5	21.7	48.2	-61.7
Bahia	209,311	700,285	91.9	10.3	234.6	-81.6
Maranhao	58,984	62,454	98.4	82.1	5.9	-16.4
Piaui	3,439	17,950	52.8	0.3	422.0	-52.4
Ceara	122,126	288,031	58.7	14.4	135.8	-44.3
Rio Grande do Norte	68,406	47,854	97.7	53.8	-30.0	-43.9
Paraiba	111,088	191,503	85.8	45.3	72.4	-40.5
Pernambuco	444,529	196,019	85.2	17.1	-55.9	-68.2
Alagoas	29,702	40,930	41.0	73.6	37.8	32.6
Sergipe	28,937	50,332	73.0	11.4	73.9	-61.6

Source: Pesquisa Nacional de Saneamento Basico 1989 and 2000.

Collected Waste and Waste Disposal

1989	Collected (ton/day)	Open Dump ("Lixao")	Controlled Landfill	Sanitary Landfill	Open Dump ("Lixao")	Controlled Landfill	Sanitary Landfill	Others
Bahia	6,063	5,260	169	550	87%	3%	9%	1%
Northeast	24,403	21,946	1,329	550	90%	5%	2%	2%
Brazil	241,614	182,190	30,082	22,456	75%	12%	9%	3%

2000	Collected (ton/day)	Open Dump ("Lixao")	Controlled Landfill	Sanitary Landfill	Open Dump ("Lixao")	Controlled Landfill	Sanitary Landfill	Others
Bahia	10,398	5,314	871	4,090	51%	8%	39%	1%
Northeast	41,558	20,044	6,072	15,030	48%	15%	36%	1%
Brazil	228,413	48,322	84,576	82,640	21%	37%	36%	6%

Source: Pesquisa Nacional de Saneamento Basico 1989 and 2000.